

# **SCE Training Curriculum**

Siemens Automation Cooperates with Education (SCE) | 09/2015

PA Module P01-07 SIMATIC PCS 7 – Importing Plant Design Data

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Automation	

#### Matching SCE Trainer Packages for these curriculum

- SIMATIC PCS 7 Software block of 3 packages Order No. 6ES7650-0XX18-0YS5
- SIMATIC PCS 7 Software block of 6 packages Order No. 6ES7650-0XX18-2YS5
- SIMATIC PCS 7 Software Upgrade block of 3 packages
   Order No. 6ES7650-0XX18-0YE5 (V8.0 → V8.1) or 6ES7650-0XX08-0YE5 (V7.1 → V8.0)
- SIMATIC PCS 7 Hardware Set including RTX Box Order No. 6ES7654-0UE13-0XS0

Please note that these trainer packages may be replaced with subsequent packages. An overview of the available SCE packages is provided at: <u>siemens.com/sce/tp</u>

#### **Continuing education**

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#### Additional information relating to SIMATIC PCS 7 and SIMIT

In particular, Getting Started, videos, tutorials, manuals wband programming guide. <u>siemens.com/sce/pcs7</u>

#### Additional information relating to SCE

siemens.com/sce

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## **IMPORTING PLANT DESIGN DATA**

#### **TRAINING OBJECTIVE**

The students learn to identify recurrent structures and to design templates. They know the difference between a process tag type and a model. They will be able to create and implement both. This allows the students to implement many similar process tag types or units in **PCS 7**. They become familiar with the process object view and are able to use it to represent parameters system-wide, and change them if needed.

#### **THEORY IN BRIEF**

In process engineering plants, objects and structures recur again and again that behave in the same way, that are equally integrated in control engineering, and that are to be visualized in the same way.



Figure 1: From process tag types to replicas

Such an object can be stored in the project library as **process tag type**. A process tag type is a single CFC. As shown in Figure 1, a large number of process tags can be generated in one operation as a copy of one process tag type, using the import/export wizard. This process is controlled by an import file. Then, the process tags can be manually adapted and connected correspondingly to specific automation tasks.



Figure 2: From models to replicas

With *models* we define more complex functions than with process tag types (up to complete units). A model consists of hierarchy folders containing CFC/SFCs, pictures, reports and supplementary documents. The entire structure can be stored in the project library as a re-useable template. Based on an import file, a large number of replicas can be generated as copy from a model in one operation using the import/export wizard (refer to



Figure 2). Then, the replicas are adapted to the specific requirements of the respective automation task.

The **PCS 7** libraries contain extensive **templates**. If a template is to be used multiple times, it is copied from the **PCS 7** library to the project library, adapted if needed and copied by means of the import/export wizard based on an import file.

#### THEORY

When designing an automation system with **PCS 7**, we can resort to general design principles for complex systems that have proven themselves again and again [1]. The most important principles are:

- The principle of hierarchical arrangement
- The principle of modularization
- The principle of reuse

The principle of hierarchical arrangement was used previously when we structured the plant in the chapter 'Plant Hierarchy'. Through structuring into subsystems that can be processed largely independent of each other, a design problem that initially seemed unmanageable is broken down into sub-tasks that are manageable and can be planned.

The principle of modularization implies that a system to be designed is set up with constituent parts (here: blocks, CFCs, SFCs) that have the following characteristics:

- The scope is manageable and can be followed easily
- Largely autonomous functions that can be checked
- As few relationships to other constituent parts as possible
- Defined interfaces to other constituent parts

This results in two rivaling complexity aspects when an automation solution is broken down into its parts:

- Low inner complexity of the parts: The more parts, the smaller and more manageable the individual parts.
- High exterior complexity of the parts: The more parts, the higher the number of connections between the parts.

Hierarchical structuring and modularization depend on each another. While hierarchical structuring is determined more by the process engineering system, modularization is dominated by process control engineering implementation. Based on the countercurrent complexity aspects mentioned above and the high dependency on actual process engineering and automation engineering tasks to be solved, early coordination of both is of advantage.

Through the plant hierarchy, *PCS* **7** supports the principle of hierarchical structuring. The principle of modularization and reuse is realized in *PCS* **7** in importing plant design data.

In larger projects or in the case of recurring similar projects, often a large number of identical or at least very similar objects and structures can be observed. To save time and outlay for the configuration, it is advisable to plan the specific search for suitable, recurring objects and structures in the concept phase and the design phase of an automation project. After such objects and structures are identified, first generic solutions are implemented and tested that subsequently can be used for a variety of identical or similar objects and structures. The additional effort that the preparation of the generic solution (here also called types and templates) entails should lead to considerable time and cost savings over the overall duration of the project because of the following factors:

- A type can be implemented multiple times, which means it has several replicas.
- By using a type in several replicas, several tests are performed at the same time.
- If errors should occur or changes are necessary, the generic solution only has to be adapted and all replicas updated.

Moreover, objects and structures that are available from earlier projects and libraries can be reused. Their advantage is that they have been tried and are largely free of errors. By using well-tried parts, the reliability of a new automation solution in general rises.

#### **PROCESS TAG TYPE**

The process tag type is used as a generic solution when a project contains many process tags of the same kind [2].

First, a CFC is prepared that contains all internal blocks and their interconnections. All input and output parameters are defined uniquely as parameters or signals. This CFC with all generally valid parameters is used to generate a process tag. In a so-called import file, the process tag specific parameters are specified in which the replicas differ.

During the import, the import/export wizard generates the process tag type replicas in the specified hierarchy folders. If there is no hierarchy, it is set up as well. Each replica is an instance of the process tag type and has its properties.

In **PCS 7**, the process tags (replicas) generated in this way can be specifically adapted in addition by adding, for example, different interlocking mechanisms. Under certain preconditions, these are not overwritten even if they are re-imported.

Properties CFC chart	x
General Process Tag Type Version	
Name of the process tag type: A1T4X00x	_
Path to process tag type : PCS7_SCE_Lib\Process tag types\\A1T4X00x	
Process tags:	
PCS7_SCE_PrjVA1_multipurpose_plantV14_finsing\rinsing_tank_B001\VA114X001 PCS7_SCE_PrjVA1_multipurpose_plant\T4_inising\rinsing_tank_B001\VA114X002 PCS7_SCE_PrjVA1_multipurpose_plant\T4_inising\rinsing_tank_B001\VA114X003 PCS7_SCE_PrjVA1_multipurpose_plant\T4_rinsing\rinsing_tank_B001\VA114X004	
Clear	
OK Cancel He	elp

Figure 3: Replica A1T2H003 of FILL\_REACTOR\_H

The following must not be changed for the process tags that were generated:

- Specific adaptations to the block interconnections that are parameterized by means of the import file. These adaptations are overwritten at the next import with the parameters that are specified in the import file.
- Block name changes.

Regarding process tag types, subsequent changes can be made easily by performing them at the process tag type and the import file. Then, the modified data is transferred to all process tags with another import. The following changes are conceivable:

- Supplementing a parameter and assigning this parameter via the import file
- Clearing all generated process tags of a process tag type (without manual deletion in the plant hierarchy)
- Supplementing an additional block interconnection and parameterizing it through the import file

#### MODEL

The model is used as a generic solution when structures of the same kind occur in the project.

As a rule, a plant is structured by breaking it down into smaller functional units whose interfaces, performance and logic can be clearly described; for example, a tank with its instrumentation. Instead of implementing these functional units again each time, an inventory of pre-assembled functional units (models) can be set up.

For a model to be used project wide in only one version, all models should be stored centrally in the master data library and adapted prior to generating replicas.

A model consists of hierarchy folders with the following elements:

- CFCs/SFCs
- OS pictures
- OS reports
- Additional documents

After a model was configured and an import file was assigned to it, replicas can be generated by means of an import. The following steps are performed automatically:

**Step 1:** The hierarchy path in the 'Hierarchy' column of the first data row in the import file is read. A check determines whether this path already exists. Further action depends on the check result.

- If the hierarchy folder exists and it is a replica of the model, the parameter settings are used from the import file for the existing replica.
- If the hierarchy folder exists and is suitable as a replica of the model, it is made into a replica of the model with its CFC and parameterized according to the import file.
- If there is no hierarchy folder, it is set up. A replica of the model is generated and parameterized accordingly.

Step 2: The following elements are inserted in the title block of the charts if the columns exist:

- Function designation
- Location designation
- CFC name
- Chart comment

**Step 3:** Texts and values of the parameter descriptions and the interconnection descriptions (signals) are written to the corresponding block or chart connections of the replicas.



**Note:** An interconnection is deleted when the signal name (symbol or textual interconnection) consists of the code word '---' (three dashes).

An interconnection remains unchanged when no connection name (symbol or textual interconnection) is specified.

*Step 4:* The data types of the connections for signals are determined and assigned to the interconnections.



**Note:** The following applies to interconnections with global addresses: When the option 'Enter signal also in the symbol table' is set, the names are searched for in the symbol table of the model resource.

For **PCS 7** it is recommended not to use this option because these entries are made in *HW Config* when the hardware is configured.

Note the following rules:

- The symbol name is present in the symbol table:

The data type has to be the same, the symbol name must exist only once. The data type is parameterized according to the block/chart connection. The absolute address is overwritten and the symbol comment is entered for the symbol (if provided in the import file). Only what has changed is overwritten; existing attributes are retained.

- The symbol name does not exist in the symbol table:

The interconnection is set up and the data type parameterized according to the connection. The absolute address and the symbol comment are entered for the symbol (if it exists in the import file).

Step 5: For each message, the message text is imported.

Then, steps 1 to 5 are repeated for each row of the import file.

When a hierarchy folder was highlighted that contains several models, the import files are displayed each with the model in the list. If needed, the list can be edited. Then, the import is performed for all models in the list as described above.

#### **PARAMETERS AND SIGNALS**

For process tag types and models to be generated successfully, it is important to define all inputs and outputs of the CFC as parameter or as a signal. Only connections that are defined as parameter or as signal can be included in the column of the import file and parameterized.

#### **PROCESS OBJECT VIEW**

With the process object view, all data of the basic automation are represented project wide in a control oriented view. Project wide means that the data of all included projects is recorded in a multi-project.

The process object view is structured similar to the plant hierarchy:

 In the left half of the window, the plant hierarchy is represented as a tree structure (hierarchy window). There, identical operating options are provided. In addition, the CFCs, SFCs, pictures, reports and supplementary documents are displayed in the hierarchy window.  In the right half, a table of the lower level objects with their attributes is displayed (content window). The content window has the tabs shown in Table 1 and provides different views to the project data.

Tab	Usage
General	This tab displays all lower-level ES objects (process tags, CFCs, SFCs, pictures, reports, or additional documents) and their general information for the plant unit currently selected in the tree view.
Blocks	This tab displays the block properties of the blocks of all lower-level CFCs for the plant unit currently selected in the tree view. In this context, SFC instances are also referred to as blocks.
Parameters	This tab displays the I/O points that were explicitly selected for editing in the process object view (S7_edit = 'para') for all the process tags and CFCs displayed in the "General" tab.
Signals	This tab displays the I/O points that were explicitly selected for editing in the process object view (S7_edit = 'signal') for all the process tags and CFCs displayed in the "General" tab.
Messages	This tab displays the corresponding messages for all the process tags, CFCs and SFCs displayed in the "General" tab.
Picture objects	This tab displays any picture interconnections which may exist in <i>WinCC</i> (if available) for all the process tags and CFCs displayed in the "General" tab.
Archive tags	This tab displays any existing interconnected <i>WinCC</i> archive tags with their attributes for all the process tags, CFCs and SFCs displayed in the "General" tab. Only those attributes that are relevant for <i>PCS</i> 7 (subset of all attributes defined in Tag Logging).
Hierarchy folder	This tab displays the hierarchy folders of the plant unit selected in the tree view (one line per hierarchy folder).
Equipment properties	This tab displays the equipment properties for the project selected in the tree view. These equipment properties are instances created by the equipment property types configured in the shared declarations (one line per equipment property. In case of a type change, that attributes are applied at the instance.
Shared Declarations	This tab shows the attributes of the enumerations, units and equipment properties included the multiproject.

Table 1:	Tabs of	the	process	obiect	view
10010 1.	1000 01		p100000	00,000	1011

#### LITERATURE

- [1] Lauber, R. und Göhner, P. (1999): Prozessautomatisierung 2. Springer Verlag
- [2] Online Help for PCS 7. Siemens

### **STEP BY STEP INSTRUCTIONS**

#### TASK

**PCS 7** is a software that provides users with many tools for programming large plants and duplicating program parts.

In this task, charts and hierarchy structures are created as library objects. They can then be used multiple times. The import/export wizard and the process object view are used to help with the task.

The chart for valve 'A1T2X001' is used here as process tag template. All additional valve inlets for the reactors are created using this process tag.

For the model, use educt tank B001 and create from it all additional educt tanks.

#### **TRAINING OBJECTIVE**

In this chapter, the student learns the following:

- Importing plant design data using the import/export wizard
- Familiarization with the process object view
- Copying charts by generating process tags
- Copying folder structures by creating models

These instructions are based on the project 'PCS7\_SCE\_0106\_Ueb\_R1503\_en.zip'.

#### PROGRAMMING

1. To duplicate a chart that is already created and tested, a process tag is generated from it. In this example, we are using valve 'A1T2X001'. Because this chart is already associated with the process tag type 'Valve\_Lean', we first have to cancel the connection in the object properties.

 $(\rightarrow A1T2X001 \rightarrow Object Properties)$ 

🔄 SIMATIC Manager - [PCS7_SCE_MP (Plant View	v) C:\Program File	es\Siemens\STEP7\S7	Proj\PCS7_S_2	2\PCS7_MP]		- • •
🖻 File Edit Insert PLC View Options	Window Help					_ <i>B</i> ×
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(會) Models (金) Process tag types				Plant Hierarchy Process Tags SIMATIC BATCH Rename	F2	
Displays properties of the selected object for editin	ıg.			Object Properties	Alt+Return	

2. In the 'Process tag type' tab, highlight the row with the valve and then click 'Cancel'. The valve is removed from the list.

```
(\rightarrow \text{Process tag type} \rightarrow \text{A1T2X001} \rightarrow \text{`Cancel'} \rightarrow \text{`OK'})
```

Properties CFC chart		Pr	operties CFC chart	×
General Process Tag Type Version	ī]		General Process Tag Type Versi	ion ]
Name of the process tag type:	Valve_Lean		Name of the process tag type:	Valve_Lean
Path to process tag type :	PCS7_SCE_Lib\Process tag types\\Valve_Lean		Path to process tag type :	PCS7_SCE_Lib\Process tag types\\Valve_Lean
Process tags:			Process tags:	
PCS7_SCE_P(VA1_multipupose) PCS7_SCE_P(VA1_multipupose) PCS7_SCE_P(VA1_multipupose)	art/TT_educt_tarks/educt_tark/B001/VATT3004 art/Targedrom/B00/VAT22001 art/T3_product_tarks/product_tark/B001/VATT3X001		PCS7_SCE_PfV41_multpurpose PCS7_SCE_Pfv41_multpurpose	plant V1_educt_tanka/educt_tank 8001\V41T1X004 glant V13_product_tanks/product_tank 8001\V41T3X001
	Clear 1			Clear
ОК	Cancel Help		ок	Cancel Help

- 3. Now we can generate a process tag type from 'A1T2X001' by clicking on 'Process tags' in the shortcut menu and then on 'Create/change Process Tag Type...'.
  - $(\rightarrow A1T2X001 \rightarrow Process Tags \rightarrow Create/Change Process Tag Types...)$

SIMATIC Manager - [PCS7_SCE_MP (Plant V	iew) C:\Program File	es\Siemens\STEP7\S7	Proj\PCS7_S_2\	PCS7_MP]		- • 💌
🔁 File Edit Insert PLC View Options	s Window Help					_ <i>B</i> ×
🗌 🗅 😅 📲 🛲 🕺 🛍 🛍 🔍 🖗	<u> </u>	No Filter >	-	] 🏹   🞇 🎯   🖷 🗄	3 🔟 🙌	
PCS7_SCE_MP     PCS7_SCE_Pri     PCS7_SCE_Pri     PCS7_SCE_Pri     PCS7_SCE_Pri     PCS7_SCE_Pri     PCS7_SCE_Lak     PCS7_SCE_Lak     PCS7_SCE_Lak     PCS7_SCE_Lak     PCS7_SCE_Lak     PCS7_SCE_Lak     PCS7_SCE_Lak     PCS7_SCE_Lak     PCS2_SCE_Lak     PC	●A1T2H001 ■A1T2S003	(股)A1124007 (股)A1121001		Enance     ATT2H011     Open Object     Cut     Copy     Paste     Delete     PLC     Access Protection     Print     Charts     Plant Hierarchy     Process Tags     SIMATIC BATCH     Rename	ImpAtT2L001           Ctrl+Alt+O           Ctrl+X           Ctrl+X           Ctrl+V           Del           ,	Create/Change Process Tag Type Update Assign/Create Import File
Starts the dialog for creating or editing the proc	ess tag type			Object Properties	Alt+Return	Export

4. The dialog Create/Modify Process Tag Type opens. ( $\rightarrow$  Next)

Process tags: Create process tag type	- PCS7_SCE_Prj\A1_multipurpose_plant\T2_reaction\reaction R001\
K Introduction	1 (2
Pint 412	Assistant: Create/Modify Process Tag Type
	Viith the assistant, you can. Create process tag type from an existing CFC chart.
	Modify an existing process tag type; in other words, add or remove I/Os or messages.
	Check existing process tags for deviations from the process tag type. The existing process tags are compared with the process tag type and adapted to eliminate any discrepancies.
	The result is a process tag type that is stored in the master data library.
	Master data library: PCS7_SCE_Lib
	Process tag types are displayed in the SIMATIC Manager with this icon
	Process tags are displayed in the SIMATIC Manager with this icon
Back Next	Cancel Help

5. First, the name of the process tag type is generalized to 'ReactorDeliveryValve' and the comment to 'Valve inlet reactor R00x from educt tank B00x'.

Process tags: Cre	ate process tag type	e - PCS	67_SCE_Prj\A1_multipurpose_plant\T2_reaction\reaction R001\	x		
Which I/C	Os do you want to assig	gn to the	e process tag type?	2 (2)		
Process tag type	ReactorDeliveryValve	e	No process tags of this type are available.			
Comment:	Valve inlet reactor R	actor RUUx from educt tank BUUx				
I/Os in the chart of the process tag type I/O points for parameters/signals						
A1T2X001	tada ale		Parameter/signal Process tag connector Cat Chart	Blo		
Email: CMF_ir Emor Em	a_A1T2X001 an_A1T2X001 k S T2X001		III I/O points for messages:	Þ		
Protect	1732001	<	Ch Block Subnumber Class Event Block type			
	4112XUU1					
Back	Finish		Open Chart Print Cancel Help			

6. Next, the parameters and signals that have to be changed between the individual replicas of the process tag type have to be selected on the left side of the window. (FbkClse\_A1T2X001  $\rightarrow$  PV\_In  $\rightarrow$  -->)



# $\underline{\mathbb{A}}$

**Note:** With "Open Chart" the associated CFC is displayed to get a better overview.  $(\rightarrow \text{Open Chart})$ 

7. Now, add all signals and parameters that represent I/O points of the CFC. Signals are input and output signals, and parameters are interconnections between charts. The signals and parameters shown here have to be added for the valve inlets of the reactors. Then the process tag can be finished. (→ Finish)

	Parameter/signal	Process tag connector	Cat	Chart	Block /	I/O name	I/O comment	Data type	1/0	Block type
1	Parameter	CMP_Interlock.In1		A1T2X001	CMP_Interlock	In1	Analogue Value 1	STRUCT	IN	CompAn02
2	Signal	FbkClse_A1T2X001.PV_In		A1T2X001	FbkClse_A1T2X001	PV_In	Input value	BOOL	IN	Pcs7Diln
3	Signal	FbkOpen_A1T2X001.PV_In		A1T2X001	FbkOpen_A1T2X001	PV_In	Input value	BOOL	IN	Pcs7Diln
4	Signal	Out_A1T2X001.PV_Out		A1T2X001	Out_A1T2X001	PV_Out	Output value	BOOL	OUT	Pcs7DiOu
5	Parameter	Permit.In01		A1T2X001	Permit	In01	Input 01	STRUCT	IN	Intlk02
6	Parameter	Protect.In01		A1T2X001	Protect	In01	Input 01	STRUCT	IN	Intlk02
7	Parameter	Valve_A1T2X001.LocalLi		A1T2X001	Valve_A1T2X001	LocalLi	1=Local Mode: Local operation by field signal	STRUCT	IN	<b>VIvL</b>
8	Parameter	Valve_A1T2X001.OpenLo		A1T2X001	Valve_A1T2X001	OpenLocal	1=Open Local:Field Open Signal	STRUCT	IN	<b>VIvL</b>
9	Parameter	e_A1T2X001.CloseLocal		A1T2X001	Valve_A1T2X001	CloseLocal	1=Close Local: Field Close Signal	STRUCT	IN	<b>VIvL</b>

											-
rocess tag type	ReactorDeliveryValve	•	No p	proces	s tags of this	type are availat	ole.				
comment:	Valve inlet reactor R0	0x from	edu	uct tank	k BOOx						1
Os in the chart	of the process tag type		I/0 j	points	for paramete	rs/signals					
A1T2X001				Paran	neter/signal	Process tag o	onnector		Cat	Chart	T
⊡ ⊕ CMP_Ir	iterlock		6	Param	neter	Protect.In01				A1T2X001	]
			7	Param	neter	Valve_A1T2X	001.Loca	<u>ili</u>		A1T2X001	4
Here HokClse	-A112X001		8	Param	ieter	Valve_ATT2X00	UUT.Oper	1LO		ATT2X001	4
E POKOpe	In_ATTZXUUT		P		ICICI	e_A112A00	T.GOSEL	Juai		ATTZAUUT	-
	15		1							•	
⊡	T2X001	>	1/0	nointo	for monora						
🕀 📲 Permit		<		points	Tor message	s.		-			_
Protect		<u> </u>		Ch	Block	Subnumber	Class	Eve	nt	Block type	

8. After Finish, the process tag type is located in the plant view in the project library under "Project Tag Types". We now have to create an import file for the project tag type we have just created.

 $(\rightarrow \text{Project Tag Types} \rightarrow \text{Project Tags} \rightarrow \text{Assign/Create Import File})$ 

File Edit Insert PLC View Options Window He	lp		_
📽 🔐 🛲   X 🖻 🛍 🕍 🔍 🖧 🏪 🏣	🗰 🗈 < No Filter >	- 🋂 📲 🏽 🔁	
PCS7_SCE_MP     MotorLean     PCS7_SCE_Pri     Shared Declarations	Reacted ab soul (sho)	Ctrl+Alt+O	
⊟-	Cut Copy	Ctrl+X Ctrl+C	
educt_tank 8001	Paste	Ctrl+V	
	Delete	Del	
in reaction R001 ⊕ Bu reaction R002	PLC	+	
Fig T3_product_tanks	Access Protection	•	
B-G product_tank B002	Print	•	
Post Science Lib	Charts Plant Hierarchy		
Shared Declarations     Models	Process Tags	•	Create/Change Process Tag Type
Process tag types	SIMATIC BATCH	•	Update
	Rename	F2	Import
	Object Properties	Alt+Return	Evnort

9. The first dialog is confirmed with "Next". ( $\rightarrow$  Next)

Process tags: Assign/Create Import File	e - PCS7_SCE_Lib\Process tag types\\ReactorDeliveryValve
	1 (2)
	Assistant: Assign the Import File to the Process Tag Type         With the assistant, you can:         Assign an import file to a process tag type.         Check the assignment of the import file to the process tag type.         Create a template of the import file for the process tag.         All process tag types are stored in the master data library         Master data library:       PCS7_SCE_Lib         Image: The CFC chart is stored in the master data library as a process tag, type. The name of the CFC chart is the type of process tag.
Back Next N	Cancel Help

10. First you have to open the chart. ( $\rightarrow$  Open Chart)

Process tags: A	ssign/Create Import import file do you want t	File - PCS7_SCE_Lib\Process tag types\\Reactor	orDeli	veryValve		x 2 (2)
Import file:	<pre>&lt; no import file assign</pre>	ed >	·	Creat	e File Templat Open File	e
Undefined I/O	points in import file: umn title	I/O points of the process tag type for parameters/       P Column title     Importing       1     P     CMP_Interlock In1       2     S     PbkCise_A1T2X001       3     S     FbkOpen_A1T2X001       4     S     Out_A1T2X001.PV       6     D     D       7     City     City	isignals	Process tag CMP_Interlo FbkClse_A1 FbkOpen_A Out_A1T2XI	connector ck.ln1 T2X001.PV_li 1T2X001.PV_out	
< <u> </u>	Þ	Messages of the process tag type: Column title Importing	Ch	Block	I/O name	Sub
Back	Finish	Open Chart Print		Cancel	Help	

11. Confirm the message that follows. ( $\rightarrow$  Yes)



12. You can see that all cross-chart connections are set up as textual interconnections, and all input and output signals with their symbolic names. The chart can now be closed again. ( $\rightarrow$  Close)



Note: The textual interconnection A1H001\A1H001.PV\_Out is structured as follows: A1H001 Name of CFCs

١	Separator
A1H001	Name of block in the CFC
	Separator
PV_Out	I/O of the block that is to be connected

Insert Textual Interconnection	
Textual interconnection:	
A1H001\A1H001.PV_Out	
ОК	Cancel Help

CFC - [ReactorDeliveryValve PCS7_SCE_Lib\Process tag	types]		
Chart Edit Insert CPU Debug View Options	Window Help		_ 8 ×
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A1H003\A1H003.FV_Out			^
AIT2H001\Out_AIT2H001.FV_Out	FbkOpen_AlT2X001 Fcs7DiInOB32 DigitalA		
*A1.T2.AIT2X001.00+.0+*	0 - 1.6 Pr. 20 0 - 31.67 Ta Orake 0 - 31.67 Ta Orake 0 - 30.87 Ta Orake - 45 Pr. 1 M. Berg - 45 Pr. 1	Permis Intiko2 Interio: 2/2 CB22 Interio: 2/2 CB22 Info: Cost NUC Cost 1 FirstinE	Vite AniAddi Vite in 100 Vite
A1H001\A1H001.FV_Out ReactorDeliveryValve(A,2)\CMP Interlock	16\$0 — DataXchg 16\$0 — <u>MS_Xchg</u>		TakClose TakClose 3.0 - MonTiSta 3.0 - MonTiSta 3.0 - MonTiSta
17 1 = Ini < Ing	Fb:Clss.Alt2001           PerF7DID         0612           Digital         2/7           0.1         2/7           0.2         1400           0.3         2/7           0.4         1400           0.5         2/8           0.5         2/8           0.5         2/8           0.5         2/8           0.6         3/8           1400         MS_Rein           1400         Mode	Interlock Interl	
A1802\A1802.FV_Out	1680- <mark>165_Xobg</mark>	Freess Interior 100 Interior 100 Info Info NOT Login 1 - Firsting	Error
Press F1 for help.		A/Sheet 1	OB32 ReactorDeliveryValve ReactorDeliveryValve\CMF

13. Next, create a new file template. ( $\rightarrow$  Create File Template...)

Process tags: Assign/Create Impor	t File - PCS7_SCE_Lib\Process tag types\\React	orDelive	eryValve		x
Which import file do you want	to assign to the process tag type?				2 (2)
Import file: <pre></pre>	ned >	•	Create	e File Templat	e
			(	Open File Other File	
Undefined I/O points in import file:	I/O points of the process tag type for parameters/	/signals:	mcess tag	connector	
T Columnate	1     P     CMP_Interlock.In1     Importing       2     S     FbkClse_A1T2X001     Importing       3     S     FbkClse_A1T2X001     Importing       4     S     Out_A1T2X001.PV     Importing       6     D     D     Importing	C Ft D	MP_Interloo bkClse_A1 bkOpen_A bkOpen_A ut_A1T2X(	ck.In1 T2X001.PV_Ir 1T2X001.PV_ 001.PV_Out	
	Column title Importing	Ch E	Block	I/O name	Sub
< Þ	< [				۴
Back Finish	Open Chart Print		Cancel	Help	

14. To the import file we assign the name ReactorDeliveryValve00.IEA and select a memory location. (→ OK)

Crea	ate Fil	e Template			<b></b>
Speich	nem	🕌 Global 🔹	+ 🗈 💣 🖃▼		
Name		*	Änderungsdatum	Тур	Größe
<b>)</b> 57	'prj		01.10.2012 08:13	Dateiordner	
Dateina	ame:	ReactorDeliveryValve00.IEA			ОК
Dateity	p:	Import/export files (*.IEA)		•	Abbrechen

15. Next we select the general columns that are to be displayed in the import file. ( $\rightarrow$  General  $\rightarrow$  Assigned CPU  $\rightarrow$  Chart comment  $\rightarrow$  Block name  $\rightarrow$  Block comment)

Create File Template	×
General Parameters Signals	Messages
Columns for the general and ch	art column group
PH comment	(PHComment)
PH author	(PHAuthor)
Assigned CPU	(CPU)
Function identifier	(FID)
Location identifier	(LID)
Chart name	(ChName)
Chart comment	(ChComment)
Chart author	(ChAuthor)
Sampling time	(ChCycle)
Block name	(BlockName)
Block comment	(BlockComment)
Block icon	(BlockIcon)
Block group	(BlockGroup)
ОК	Cancel Help

16. Then we select the columns that are to be displayed for the parameters and the signals in the import file. (→ Parameters → I/O comment→ Textual interconnection → Signals → I/O comment→ Symbol name → OK)

Create File Template	×	Create File Template	
General Parameters Signals M	lessages	General Parameters Signals	Messages
Columns for parameters column	groups	Columns for signal column gr	oups
Value	(Value)	☐ Value	(Value)
V I/O comment	(ConComment)	I/O comment	(ConComment)
Textual interconnection	(TextRef)	Symbol name	(SymbolName)
ldentifier	(S7_shortcut)	Symbol comment	(SymbolComment)
🗌 Unit	(S7_unit)	Absolute address	(AbsAddr)
Text 0	(S7_string_0)	🗌 Identifier	(S7_shortcut)
Text1	(S7_string_1)	Unit	(S7_unit)
Enumeration	(S7_enum)	Text 0	(S7_string_0)
🗌 Invisible	(S7_visible)	Text 1	(S7_string_1)
MES relevant	(S7_mes)		(S7_enum)
Archiving	(S7_archive)	🖂 Invisible	(S7_visible)
Chart I/O name	(RefName)	MES relevant	(S7_mes)
ОК	Cancel Help	ОК	Cancel Help

17. The import file created in this way is then opened. ( $\rightarrow$  Open File...)

Process tags: Assign/Create Import I	File - PCS7_SCE_Lib\Process tag types	s\\ReactorDelivery	Valve X
Which import file do you want to	assign to the process tag type?		2 (2)
Import file: C:\Program Files\Sien	ens\STEP7\S7Proj\PCS7_S_2\PCS7_L	.ib\Global\Re ▼	Create File Template
			Open File
			Other File
Undefined I/O points in import file:	I/O points of the process tag type for par	rameters/signals:	
P Column title	P     Column title     Impo       1     P     CMP_Interlock.In1       2     S     FbkClse_A1T2X001       3     S     FbkOpen_A1T2X001       4     S     Out_A1T2X001.PV       5     D     Dormatiling11       4     S     Out_A1T2X001.PV	orting     Proc       V     CMF       V     Fbk0       V     Fbk0       V     Out_       I     Pom	Altrophysical actions and a set of the set o
	Column title Importing	Ch Blo	ck I/O name Sub
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Back Finish	Open Chart Print	Ca	ancel Help

18. Now, duplicate the first row by selecting, after a right click on the first row, the option "Duplicate row...". (→ Duplicate Row...)

🕐 IEA F	ile Editor: Editing IEA F	iles - [C:\Program File	es\Siemens\STEP7\S7Proj\PCS7_S_2\PCS7	_Lib\Global\Reactor	rDeliveryValve00.IEA]	
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		1 CA	artan x x x x x x x x x x x x x x x x x x x			
1	Project	Hierarchy		CPU	ChName	ChComment
2	Fioject	Therarchy		CFU		Chart
3	Prj		H\	AS		C
4	PCS7_SCE_Pri	A1 multinumose	plant\T2_reaction\reaction R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x
	Undo	Ctrl+Z				
	Redo	Ctrl+R				
	Cut	Ctrl+X				
	Сору	Ctrl+C				
	Insert	Ctrl+V				
•	Insert Rows					
Pri	Duplicate Row					NUM

19. In the window that now opens, enter the number of rows. In this case there are 5, because a total of 6 valve inlets exist for the reactors that are to be edited/created using this process tag type. ( $\rightarrow$  5  $\rightarrow$  OK)

Duplica	te Rows			x
Numb	er of duplicati	ed rows		
E	•			
5	<u>.</u>			
	0K	<u> </u>		-
	uk Di T	Lancel	Help	

👔 IEA File Editor: Editing IEA Files - [C:\Program Files\Siemens\STEP7\STProj\PCS7_S_2\PCS7_Lib\Globa\ReactorDeliveryValve00.IEA]								
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4	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x			
5	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x			
6	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x			
7	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x			
8	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x			
9	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x			
•								
Press F1 fo	or help				NUM //			

20. In the duplicated rows, we now enter the specific properties for each valve. Start with the hierarchy, the ChName and ChComment.

👌 IEA Fil	🕼 IEA File Editor: Editing IEA Files - [C\Program Files\Siemens\STEP7\S7Proj\PCS7_5_2\PCS7_Lib\Global\ReactorDeliveryValve00.IEA]							
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1	Project	Hioraraby	CPU	ChName	ChComment			
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3	Prj	H/	AS		C			
4	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R001\	S7 Program(1)	A1T2X001	Valve inlet reactor R001 from educt tank B001			
5	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R001\	S7 Program(1)	A1T2X002	Valve inlet reactor R001 from educt tank B002			
6	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R001\	S7 Program(1)	A1T2X003	Valve inlet reactor R001 from educt tank B003			
7	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R002\	S7 Program(1)	A1T2X004	Valve inlet reactor R002 from educt tank B001			
8	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R002\	S7 Program(1)	A1T2X005	Valve inlet reactor R002 from educt tank B002			
9	PCS7_SCE_Prj	A1_multipurpose_plant\T2_reaction\reaction R002\	S7 Program(1)	A1T2X006	Valve inlet reactor R002 from educt tank B003			
•	<							
Press F1 fo	or help				NUM //			

21. Next, we have to set the correct parameters and signals for each row. This can be speeded up by using the row by row Find/Replace. In row 2, for example, we can replace 'A1T2X001' with 'A1T2X002'.

🔅 IEA Fil	🚱 IEA File Editor: Editing IEA Files - [Cl.Program Files\Siemens\STEP7\S7Proj\PCS7_5_2\PCS7_Lib\Global\ReactorDeliveryValve00.IEA]											
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4	PCS7_SCE_Prj	A1T2L001\Level_A	A1T2L001.PV_Out	Analogue Value 1								
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7	Redo	Ctrl+R	1T2L001.PV_Out	Analogue Value 1	(	A1T2X001				A1T2X002		
8	Cut	Ctrl+X	1T2L001.PV_Out	Analogue Value 1	(	·						
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	Find/Replace	Ctrl+F3				I Match	case					
Pres	Optimum Column V	Vidth										
						Find		Replace	Replac		Close	Help

22. Now, edit the rows of the file as shown below. The input signals (SymbolName column) should be placed in quotation marks ""; otherwise, they cannot be located. The output signals (SymbolName column) should be set as absolute address, or the CFCs corrected afterwards.

👌 IEA File	Editor: Editing IEA Files -	[C:\Program Files\Siemens\STEP7\S7P	roj\PCS7_S_2\PCS7_Lib	Global\ReactorDeli	veryValve00.IEA]	1	-		100			
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6	PCS7 SCE Pri A17	2L001/Level A1T2L001.PV Out	Analogue Value	1 CMP Interloc	k Comparato	or for two analog	values	"A1.T2.A1T2X002.G	0+0-" Inpu	t value	FbkClse_A11	2X002 Digital input driver
7	PCS7_SCE_Prj A17	2L002 Level_A1T2L002.PV_Out	Analogue Value	1 CMP_Interloc	k Comparate	or for two analog	, g values	"A1.T2.A1T2X004.G	0+0-" Inpu	t value	FbkClse_A1T	2X004 Digital input driver
8	PCS7_SCE_Prj A11	2L002\Level_A1T2L002.PV_Out	Analogue Value	1 CMP_Interloc	k Comparate	or for two analog	g values	"A1.T2.A1T2X005.G	O+O-" Inpu	t value	FbkClse_A1T	2X005 Digital input driver
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5	PCS7_SCE_Prj	"A1.T2.A1T2X002.GO+O+"	' Input value	FbkOpen	A1T2X002	Digital inp	ut driver	Q 1.5	Output valu	ie Oi	it_A1T2X002	Digital output driver
6	PCS7_SCE_Prj	"A1.T2.A1T2X003.GO+O+"	' Input value	FbkOpen	A1T2X003	Digital inp	ut driver	Q 1.6	Output valu	ie Ou	it_A1T2X003	Digital output driver
7	PCS7_SCE_Prj	"A1.T2.A1T2X004.GO+O+"	' Input value	FbkOpen	_A1T2X004	Digital inp	ut driver	Q 1.7	Output valu	ie Ou	ut_A1T2X004	Digital output driver
8	PCS7_SCE_Prj	"A1.T2.A1T2X005.GO+O+"	' Input value	FbkOpen	_A1T2X005	Digital inp	ut driver	Q 2.0	Output valu	ie Ou	it_A1T2X005	Digital output driver
9	PCS7_SCE_Prj	"A1.T2.A1T2X006.GO+O+	' Input value	FbkOpen	_A1T2X006	Digital inp	ut driver	Q 2.1	Output valu	ie Ou	it_A1T2X006	Digital output driver
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6	PCS7_SCE_Pri	A1H001\A1H001 PV_Out	Input 01	Permit	Interlock with	2 inputs	A1H002(	A1H002.PV_Out	Input 01		Protect	Interlock with 2 inputs
7	PCS7_SCE_Pri	A1H001\A1H001 PV_Out	Input 01	Permit	Interlock with	2 inputs	A1H002(	A1H002 PV_Out	Input 01		Protect	Interlock with 2 inputs
8	PCS7 SCE Pri	A1H001\A1H001.PV_Out	Input 01	Permit	Interlock with	2 inputs	A1H002	A1H002.PV Out	Input 01		Protect	Interlock with 2 inputs
9	PCS7 SCE Pri	A1H001\A1H001 PV_0ut	Input 01	Permit	Interlock with	2 inputs	A1H002(	A1H002 PV_Out	Input 01		Protect	Interlock with 2 inputs
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<ul> <li>IEA I</li> <li>File</li> <!--</td--><td>e Edit View W Project Project PCS7_SCE_P PCS7_SCE_P PCS7_SCE_P PCS7_SCE_P PCS7_SCE_P PCS7_SCE_P PCS7_SCE_P</td><td>indow         Help           indow         Help           indow         Help           image: transform         Image: transform           iman</td><td>ConCo Out 1=Loca Out 1=Loca Out 1=Loca Out 1=Loca Out 1=Loca Out 1=Loca Out 1=Loca</td><td>B B B B B B B B B B B B B B B B B B B</td><td>operation b operation b operation b operation b operation b</td><td>Valve_A1T by field sign by field sign by field sign by field sign by field sign by field sign</td><td>Blo 2X001.Lc Pl al Va al Va al Va al Va al Va al Va al Va</td><td>bckName bcalLi lve_A1T2X001 lve_A1T2X002 lve_A1T2X003 lve_A1T2X004 lve_A1T2X005 lve_A1T2X006</td><td>BlockCo Valve in Valve in Valve in Valve in Valve in</td><td>emment let reac let reac let reac let reac</td><td>tor R001 fror tor R001 fror tor R001 fror tor R002 fror tor R002 fror tor R002 fror</td><td>n educt tank B001 n educt tank B002 n educt tank B003 n educt tank B003 n educt tank B003 n educt tank B002 n educt tank B002 n educt tank B003</td></ul>	e Edit View W Project Project PCS7_SCE_P PCS7_SCE_P PCS7_SCE_P PCS7_SCE_P PCS7_SCE_P PCS7_SCE_P PCS7_SCE_P	indow         Help           indow         Help           indow         Help           image: transform         Image: transform           iman	ConCo Out 1=Loca Out 1=Loca Out 1=Loca Out 1=Loca Out 1=Loca Out 1=Loca Out 1=Loca	B B B B B B B B B B B B B B B B B B B	operation b operation b operation b operation b operation b	Valve_A1T by field sign by field sign by field sign by field sign by field sign by field sign	Blo 2X001.Lc Pl al Va al Va al Va al Va al Va al Va al Va	bckName bcalLi lve_A1T2X001 lve_A1T2X002 lve_A1T2X003 lve_A1T2X004 lve_A1T2X005 lve_A1T2X006	BlockCo Valve in Valve in Valve in Valve in Valve in	emment let reac let reac let reac let reac	tor R001 fror tor R001 fror tor R001 fror tor R002 fror tor R002 fror tor R002 fror	n educt tank B001 n educt tank B002 n educt tank B003 n educt tank B003 n educt tank B003 n educt tank B002 n educt tank B002 n educt tank B003

23. Finally, change the parameter for the manual control as shown here. The character "-" in front of the textual interconnection means 'invert'.

👌 IEA Fil	e Editor: Editing IEA F	Files - [C:\Program Files\Siemens\STEP7\S7Pr	oj\PCS7_S_2\PCS7_Lib\Global\ReactorDe	liveryValve00.IEA]			
😰 File	🐉 File Edit View Window Help						
DB		∎ <b>▷ ○ 牀 옮옮옮홂</b> 牀 ∃	₽ ¥⇒ 8				
1	Project	TextRef	ConComment	TextRef	ConComment		
2	Floject	Valve_A1T2X00	1.OpenLocal	e_A1T2X001.0	loseLocal		
3	Prj	P		Pl			
4	PCS7_SCE_Prj	A1T2H001\Out_A1T2H001.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H001\Out_A1T2H001.PV_Out	1=Close Local: Field Close Signal		
5	PCS7_SCE_Prj	A1T2H002\Out_A1T2H002.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H002\Out_A1T2H002.PV_Out	1=Close Local: Field Close Signal		
6	PCS7_SCE_Prj	A1T2H003\Out_A1T2H003.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H003\Out_A1T2H003.PV_Out	1=Close Local: Field Close Signal		
7	PCS7_SCE_Prj	A1T2H004\Out_A1T2H004.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H004\Out_A1T2H004.PV_Out	1=Close Local: Field Close Signal		
8	PCS7_SCE_Prj	A1T2H005\Out_A1T2H005.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H005\Out_A1T2H005.PV_Out	1=Close Local: Field Close Signal		
9	PCS7_SCE_Prj	A1T2H006\Out_A1T2H006.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H006\Out_A1T2H006.PV_Out	1=Close Local: Field Close Signal		
٠			•		4		
Press F1 fo	or help				NUM		

24. After all changes have been made, save the file. ( $\rightarrow$  File  $\rightarrow$  Save  $\rightarrow$  Close)

🔅 IEA	File Editor: Editing IEA Files - [C:\Pr	ogram Files\	Siemens	\STEP7\S7Proj\PCS7_S_2\PCS7_Lib\Global\ReactorDeliv	eryValve00.IEA]	
₹ <b>₽</b> F	le Edit View Window Help					_ 8 ×
	New	Ctrl+N	h .	â∰ ≝ ⊯⊨ <b>⊟</b>		
1	Open	Ctrl+O		ConComment	BlockName	BlockComment
2	Close			Valve_A1T2X0	)1.LocalLi	
3	Save	Ctrl+S		P		
4	Save As		Dut	1=Local Mode: Local operation by field signal	Valve_A1T2X001	Valve inlet reactor R001 from educt tank B001
5	Drint	Chillin D	Dut	1=Local Mode: Local operation by field signal	Valve_A1T2X002	Valve inlet reactor R001 from educt tank B002
6	Print	Ctri+P	Dut	1=Local Mode: Local operation by field signal	Valve_A1T2X003	Valve inlet reactor R001 from educt tank B003
7	Print Preview		Dut	1=Local Mode: Local operation by field signal	Valve_A1T2X004	Valve inlet reactor R002 from educt tank B001
8	Print Setup		Dut	1=Local Mode: Local operation by field signal	Valve_A1T2X005	Valve inlet reactor R002 from educt tank B002
9	1 Reactor Deliven d/alve00 IFA		Dut	1=Local Mode: Local operation by field signal	Valve_A1T2X006	Valve inlet reactor R002 from educt tank B003
•	2 monthing pool of IEA					4 11
Save	3 reaction R001_01.IEA					NUM //

25. Creating and assigning the import file is now finished. ( $\rightarrow$  Finish)

Process tags: Assign/Create Import File - F	PCS7_SCE_Lib\Process tag ty	pes\\ReactorDeliv	reryValve		
Which import file do you want to assign	n to the process tag type?			:	2 (2)
Import file: C:\Program Files\Siemens\S	Create File Template				
				Other File	
Undefined I/O points in import file: P Column title	I/O points of the process tag t P Column title P Column title P Column title CMP_Interlock.In1 S. FbkOpen_A1T2X00 S. FbkOpen_A1T2X01 Vertex tag to the process tag tag the process tag	ype for parameters/s	ignals: Process tag connector CMP_Interlock.In1 FbkCise_A1T2X001.PV_I FbkOpen_A1T2X001.PV_Out Out_A1T2X001.PV_Out Dormat In01	Category Ch n R h R h R k b	4
	Column title	importing	Ch Block I/O name	Subnumber Clas	<u>s</u>
Back Finish	Open Chart Print		Ca	ncel Help	•

26. We can now start importing the created process tag type. ( $\rightarrow$  ReactorDeliveryValve  $\rightarrow$  Process Tags  $\rightarrow$  Import...)

SIMATIC Manager - [PCS7_SCE_MP (Plant View)	C:\Program Files\Siemens\STE	P7\S7Proj\PCS7_S_2\PCS7	_MP]	
Bile Edit Insert PLC View Options Wir	ndow Help			_ <i>E</i> ×
🗅 🚅   🎛 🛲   👗 🗈 🛍   📽   🗣   🎙	a 📴 🖽 🏢 💼 🔜 No Fit	er> 🗾 🍸	號 🍘   🖷 🖻	1 N 1
PCS7_SCE_MP     PCS7_SCE_Pri	fotorLean 🔯 Reactor	Open Object	Ctrl+Alt+O	
Ghared Declarations     A1_multipurpose_plant		Cut	Ctrl+X	
🚊 💼 T1_educt_tanks		Сору	Ctrl+C	
educt_tank B001		Paste	Ctrl+V	
educt_tank B003		Delete	Del	
eaction R001		PLC	۰.	
E- Fin T3_ product_tanks		Access Protection	+	
E im product_tank B001 E im product_tank B002		Print	•	
⊡…≦i T4_rinsing ⊞…≦i rinsing_tank B001		Charts	+	
🖻 🗇 PCS7_SCE_Lib		Plant Hierarchy	+	
Shared Declarations		Process Tags	+	Create/Change Process Tag Type
Process tag types		SIMATIC BATCH	•	Update Assign/Create Import File
		Rename	F2	Import
J		Object Properties	Alt+Return	Export
Creates process tags from the process tag type and ass	igns parameters to the copies		_	li.

27. The first step of the dialog is confirmed with "Next". ( $\rightarrow$  Next)

Import/Export Assistant Process tags:	Import - PCS7_SCE_Lib\Process tag types\\ReactorDeliver	yValve	×
K Introduction			1 (3)
	Assistant: Import Process Tags With the assistant, you can create process tags from process import the data from the import files into the process tags. The process tag type is copied from the master data library to the larget projects and the data is then imported. As the result, you obtain a process tag for each line of an import of the process tag type. The data of the import likes are written corresponding UGs or blocks of the process tag. Process tags are displayed in the SIMATIC Manager of Process tags are display	ag types and he relevant nt file as a cop to the with this icon.	zγ
Back Next	Cancel	н	elp

28. In the next dialog box, we select the option "Make Textual Interconnections" and then click on "Next". (→ Make Textual Interconnections → Next)

Import/Export Assistant Process tags: Import - PCS7_SCE_Lib\Process tag types\\ReactorD	eliveryValve	<b></b>
Which settings do you want to use for import ?		2 (3)
☐ Include signal in the symbol table		
Import file <> Process tag type		
Import C:\Program Files\Siemens\STEP7\S7Proj\PCS7 S 2\PCS7 Lib\Global\ReactorDeliveryValve00	.IEA	Open File
		Other File
<	P.	
Back Next	Cancel	Help

29. We can now start the import by selecting "Finish". ( $\rightarrow$  Finish)

Import/	xport Assistant Process tags: Import - PCS7_SCE_Lib\Process tag types\\ReactorDeliveryValve	×
**	Do you want to finish the import ?	3 (3)
🗆 On	y show errors and warnings in log	
Import	Dg:	
Objec	t Action Log text	
•	m	
Log file	C:\Program Files\Siemens\STEP7\S7Proj\PCS7_S_2\PCS7_Lib\Global\ReactorDeliveryValve00.LOG Other File	
	· · · · · · · · · · · · · · · · · · ·	
Bac	k Finish Open Object Print	Help

- 30. After this process is completed, the log is displayed.
  - $(\rightarrow \mathsf{Exit})$

Image: Construction: State Provide Provide State Provide State Provide Provide Provide State Provide Provid	Import/Export Assistant Process tag	s: Import - PCS7_SCE_Lib\Process tag types\\ReactorDeliveryValve		x
C Only show encos and warnings in log Import log:  C Only show encos and warnings in log Import log:  C Only show encos and warnings in log C Only Set P(1A1 multiple. o k. Interconnection A1122H005/Out_A1122H005/PV_Out of type TSTRUCT made, old interconnection A1122H001/Out_A1122H001/PV_Out detected. C OS SEE P(1A1 multiple. o k. Attracted for parameter :: a / 1122/001/ DoseLocal of type hegBOOL written. C OS SEE P(1A1 multiple. o k. Attracted for parameter :: a / 1122/001/ DoseLocal of type hegBOOL written. C OS SEE P(1A1 multiple. o k. Attracted for parameter :: a / 1122/001/ DoseLocal of type hegBOOL written. C OS SEE P(1A1 multiple. o k. Attracted for parameter :: a / 1122/001/ DoseLocal of type hegBOOL written. C OS SEE P(1A1 multiple. o k. Book comment Tomparator for two analog values' already wrists. C OS SEE P(1A1 multiple. o k. Book comment Tomparator for two analog values' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A1 multiple. o k. Book comment TopIatal input dwor' already wrists. C OS SEE P(1A	Co you want to finish the impor	?		3 (3)
Import log:           Object         Action         Log ted           PCS7_SCE_PI(A1_multip::::::::::::::::::::::::::::::::::::	Only show errors and warnings in I	pg		
Object         Action         Log ted           PCST SCE P(A) I publip.         Interconnection 'A1T2H005/0.4, A1T2H005 PV_Out' of type'STRUCT' made, old interconnection 'A1T2H001/PV_Out' detected.           PCST SCE P(A) I publip.         0.6.         Interconnection 'A1T2H005/0.4, A1T2H005 PV_Out' of type'STRUCT' made, old interconnection 'A1T2H001/PV_Out' detected.           PCST SCE P(A) I publip.         0.6.         Attributes for parameter'. a, A1T22002 Lovel_A1T2L002 PV_Out' of type 'STRUCT' made, old interconnection 'A1T2L001/Level_A1T2L001/PV_Out' detected.           PCST SCE P(A) I publip.         0.6.         Book name CMP I prefetok' already exists.           PCST SCE P(A) I publip.         0.6.         Book name CMP I prefetok' already exists.           PCST SCE P(A) I publip.         0.6.         Book name CMP I prefetok' already exists.           PCST SCE P(A) I publip.         0.6.         Book name CMP I prefetok' already exists.           PCST SCE P(A) I publip.         0.6.         Book name T CMP and prefetok' already exists.           PCST SCE P(A) I publip.         0.6.         Book name T Dystal input diver already exists.           PCST SCE P(A) I publip.         0.6.         Book name T Dystal input diver already exists.           PCST SCE P(A) I publip.         0.6.         Book name T Dystal input diver already exists.           PCST SCE P(A) I publip.         0.6.         Book name T Dystal input diver already exists.	Import log:			
PC37_SCE_P(A1_multp	Object Action	Log text		
PC37_SCE_P1A1_multipok.       Attributes for parameter 'e_ATT2X001 CloseLocal' of type TegBOOL' made. old interconnection 'ATT2L001\Level_ATT2L001.PV_Out' deleted.         PC37_SCE_P1A1_multipok.       Block name 'CMP_Itelock' already exists.         PC37_SCE_P1A1_multipok.       Block name 'CMP_Itelock' already exists.         PC37_SCE_P1A1_multipok.       Block name 'TAT2200F writen.         PC37_SCE_P1A1_multipok.       Block name 'TAT22006' writen.         PC37_SCE_P1A1_multipok.       Block name 'TAC200F writen.         PC37_	PCS7_SCE_Prj\A1_multip o.k. PCS7_SCE_Prj\A1_multip o.k.	Interconnection 'A1T2H005\Out_A1T2H005.PV_Out' of type'STRUCT' made, old interconner Interconnection 'A1T2H005\Out_A1T2H005.PV_Out' of type'negBOOL' made, old interconne	ction 'A1T2H001\Out_A1T2H001.PV_Out' deleted. ection 'A1T2H001\Out_A1T2H001.PV_Out' deleted.	
PC57_SCE_P1A1_multp       ok.       Interconnection 'A1T2L002_Veval_A1T2L002_Veval_A1T2L002_Veval_AT2L002_Veval_Veval_CT         PC57_SCE_P1A1_multp       ok.       Block commert CVm_Interlock already exists.         PC57_SCE_P1A1_multp       ok.       Symbolic interconnection 'A1T2A172W06 GG+-O-'' of type 'BOOL' made, old interconnection 'A1.T2A172W001.GG+-O-' deleted.         PC57_SCE_P1A1_multp       ok.       Block name TbkClae_A1T2X006 written.         PC57_SCE_P1A1_multp       ok.       Block name Tok_T172X001 Writer' already exists.         PC57_SCE_P1A1_multp       ok.       Block name Tok_T172X001 Writer' already exists.         PC57_SCE_P1A1_multp       ok.       Block name Vat_P1X2X001 Writer' already exists.         PC57_SCE_P1A1_multp       ok.       Block name Proter' already exists.         PC57_SCE_P1A1_multp       ok.       <	PCS7_SCE_Prj\A1_multip o.k.	Attributes for parameter 'e_A1T2X001.CloseLocal' of type 'negBOOL' written.		
PC57_SCE_P1VA1_multipok.       Block name TCMP_Interdock' already exists.         PC57_SCE_P1VA1_multipok.       Symbolic interconnection "A1.T2.A1T2X006 GV+-0-" of type 'BOOL' made, old interconnection 'A1.T2.A1T2X001.GO+-0-" deleted.         PC57_SCE_P1VA1_multipok.       Block comment 'Digital input diver' already exists.         PC57_SCE_P1VA1_multipok.       Block comment 'Digital exists.         PC57_SCE_P1VA1_multipok.       Block comment 'Dinteriol on vital 'Digital exists.	PCS7_SCE_Prj\A1_multip o.k.	Interconnection 'A1T2L002\Level_A1T2L002.PV_Out' of type'STRUCT' made, old interconnection	ection 'A1T2L001\Level_A1T2L001.PV_Out' deleter	d.
PC57_SCE_Pt\A1_muttpok.       Block comment 'Comparator for two analog values' already exists.         PC57_SCE_Pt\A1_muttpok.       Symbolic interconnection 'A1T2A172X006.G0+-0-'' of type 'BOOL' made, old interconnection 'A1.T2A1T2X001.G0+-0+' deleted.         PC57_SCE_Pt\A1_muttpok.       Block comment 'Digital input driver' already exists.         PC57_SCE_Pt\A1_muttpok.       Block comment 'Digital output driver' already exists.         PC57_SCE_Pt\A1_muttpok.       Block comment 'Digital output driver' already exists.         PC57_SCE_Pt\A1_muttpok.       Block comment 'Digital output driver' already exists.         PC57_SCE_Pt\A1_muttpok.       (Textual) interconnection 'A11001.PV_Out' already exists.         PC57_SCE_Pt\A1_muttpok.       Block comment 'Interdock with 2 inputs' already exists.         PC57_SCE_Pt\A1_muttpok.       Block comment 'Interdock with 2 inputs' already exists.         PC57_SCE_Pt\A1_muttpok.       Block comment 'Interdock with 2 inputs' already exists.         PC57_SCE_Pt\A1_muttpok.       Block comment 'Interdock with 2 inputs' already exists.	PCS7_SCE_Prj\A1_multip o.k.	Block name 'CMP_Interlock' already exists.		
PCS7_SCE_P(NAI_multipok.       Symbolic interconnection "A1.12A1T2X006.GO+-O-" of type 'BOOL' made, old interconnection 'A1.12A1T2X001.GO+-O-' deleted.         PCS7_SCE_P(NAI_multipok.       Block commer Tb(bital input driver' already exists.         PCS7_SCE_P(NAI_multipok.       Block commer Tb(bital output driver' already exists.         PCS7_SCE_P(NAI_multipok.       Block commer Tb(bital output driver' already exists.         PCS7_SCE_P(NAI_multipok.       Block commer Tb(bital exact were already exists.         PCS7_SCE_P(NAI_multipok.       Block commer Tb(bital exact were already exists.         PCS7_SCE_P(NAI_multipok.       Block commer Threfock with 2 input already exists.         PCS7_SCE_P(NAI_multipok.       Block commer Threfock with 2 input already exists.         PCS7_SCE_P(NAI_multipok.       Block commer Threfock with 2 input already exists.         PCS7_SCE_P(NAI_multipok.       Block commer Threfock with 2 input already exists.         PCS7_SCE_P(NAI_multipok.       Block commer Threfock with 2 input already exists.         PCS7_SCE_P(NAI_multi	PCS7_SCE_Prj\A1_multip o.k.	Block comment 'Comparator for two analog values' already exists.		
PC57_SCE_P(NAT_multipok.       Block comment "Digital input driver" already exists.         PC57_SCE_P(NAT_multipok.       Symbolic interconnection "A1T2X172X006 Got+.0+" of type 'BOOL' made, old interconnection 'A1.T2.A1T2X001.GO+.0+' deleted.         PC57_SCE_P(NAT_multipok.       Block comment "Digital input driver" already exists.         PC57_SCE_P(NAT_multipok.       Symbolic interconnection '0.2.1" of type 'BOOL' made, old interconnection 'A1.T2.A1T2X001.KV.C' deleted.         PC57_SCE_P(NAT_multipok.       Block comment "Digital output driver" already exists.         PC57_SCE_P(NAT_multipok.       Block comment "NH0012X1H002.PV_Out" already exists.         PC57_SCE_P(NAT_multipok.       (Fetual) interconnection 'A1H0012X1H002.PV_Out" already exists.         PC57_SCE_P(NAT_multipok.       Block comment 'NH0012X1H002.PV_Out" already exists.         PC57_SCE_P(NAT_multipok.       Block comment 'NH0012X1H002.PV_Out" already exists.         PC57_SCE_P(NAT_multipok.       Block comment 'NH0012X1H002.PV_Out" already exists.         PC57_SCE_P(NAT_multipok.       Block comment 'Nalt	PCS7_SCE_Prj\A1_multip o.k.	Symbolic interconnection "A1.T2.A1T2X006.GO+O-" of type 'BOOL' made, old interconnection	tion 'A1.T2.A1T2X001.GO+O-' deleted.	
PCS7_SCE_PIN4T_multipok.       Block comment 'Digital input driver' already exists.         PCS7_SCE_PIN4T_multipok.       Block name 'Perkit TIZX006 Got-0-" of type 'BOOL' made, old interconnection 'A1.T2.A1T2X001.GOt-0+' deleted.         PCS7_SCE_PIN4T_multipok.       Block name 'Perkit already exists.         PCS7_SCE_PIN4T_multipok.       Block comment 'Interioron ection 'A1.T2.A1T2X001.XV.C' deleted.         PCS7_SCE_PIN4T_multipok.       Block comment 'Interioron ection 'A1.T2.A1T2X001.XV.C' deleted.         PCS7_SCE_PIN4T_multipok.       Block comment 'Interioron ection 'A1.T0.2.NT2X005' written.         PCS7_SCE_PIN4T_multipok.       Block comment 'Interioron' writs' already exists.         PCS7_SCE_PIN4T_multipok.       Interconnection 'A112MOIS/VL1M03.PV_Out' already exists.         PCS7_SCE_PIN4T_multipok.       Interconnection 'A11	PCS7_SCE_Prj\A1_multip o.k.	Block name 'FbkClse_A1T2X006' written.		
PCS7_SCE_PIN4I_multipok.       Symbolic interconnection "A1.12 A1T2X006 GO+.0-"" of type 'BOOL' made, old interconnection 'A1.12 A1T2X001.GO+.0+' deleted.         PCS7_SCE_PIN4I_multipok.       Block comment 'Digital input driver' already exists.         PCS7_SCE_PIN4I_multipok.       Block name 'BX0400' written.         PCS7_SCE_PIN4I_multipok.       Block comment 'Digital output driver' already exists.         PCS7_SCE_PIN4I_multipok.       Block comment 'Digital interconnection 'A1102/V_Out' already exists.         PCS7_SCE_PIN4I_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCS7_SCE_PIN4I_multipok.       Block name 'Protect' already exists.         PCS7_SCE_PIN4I_multipok.       Block comment 'Natrock with 2 inputs' already exists.         PCS7_SCE_PIN4I_multipok.       Block comment 'Natrock withen.         PCS7_SCE_PIN4I_multipok.       Block comment 'Natrock with 2 inputs' already exists.         PCS7_SCE_PIN4I_multipok.       Block comment 'Natroch with 2 inputs' already exists.         PCS7_SCE_PIN4I_multipok.       Helpot comment 'Natroch with 2 inputs' already exists.         PCS7_SCE_PIN4I_multipok.<	PCS7_SCE_Prj\A1_multip o.k.	Block comment 'Digital input driver' already exists.		
PCS7_SCE_PI(Va1,multip:ok.       Block name TheKOpen_ATT2X006 written.         PCS7_SCE_PI(Va1,multip:ok.       Block comment 'Digital input driver' already exists.         PCS7_SCE_PI(Va1,multip:ok.       Block comment 'Digital output driver' already exists.         PCS7_SCE_PI(Va1,multip:ok.       Block comment 'Digital output driver' already exists.         PCS7_SCE_PI(Va1,multip:ok.       Block comment 'Interconnection 'AIT2X006' written.         PCS7_SCE_PI(Va1,multip:ok.       Block comment 'Interconnection 'AIT02X006' written.         PCS7_SCE_PI(Va1,multip:ok.       Block comment 'Interconnection 'AIT02X014H002.PV_Out' already exists.         PCS7_SCE_PI(Va1,multip:ok.       Block comment 'Interconnection 'AIT02X014H002.PV_Out' already exists.         PCS7_SCE_PI(Va1,multip:ok.       Block comment 'Interiock wth 2 inputs' already exists.         PCS7_SCE_PI(Va1,multip:ok.       Block comment 'Interiock wth 2 inputs' already exists.         PCS7_SCE_PI(Va1,multip:ok.       Block name Protect' already exists.         PCS7_SCE_PI(Va1,multip:ok.       Block name Valve AIT2X006' written.         PCS7_SCE_PI(Va1,multip:ok.       Interconnection 'AIT2H006'Not_AIT2H006'Not_AIT2H000'N	PCS7_SCE_Prj\A1_multip o.k.	Symbolic interconnection "A1.T2.A1T2X006.GO+O+" of type 'BOOL' made, old interconnection	tion 'A1.T2.A1T2X001.GO+O+' deleted.	
PCS_SCE_PINAI_multipok.       Block comment 'Ugital input driver' already exists.         PCS_SCE_PINAI_multipok.       Block name 'Out_ATT2X000' written.         PCS_SCE_PINAI_multipok.       Block name 'Out_ATT2X000' written.         PCS_SCE_PINAI_multipok.       Block name 'Out_ATT2X000' written.         PCS_SCE_PINAI_multipok.       Block name 'Poter' already exists.         PCS_SCE_PINAI_multipok.       Block name 'Preder' already exists.         PCS_SCE_PINAI_multipok.       Block comment 'Interiook with 2 inputs' already exists.         PCS_SCE_PINAI_multipok.       Block comment 'Interiook with 2 inputs' already exists.         PCS_SCE_PINAI_multipok.       Block comment 'Interiook with 2 inputs' already exists.         PCS_SCE_PINAI_multipok.       Block comment 'Nave inter neactor R002 from educt tank 8003' written.         PCS_SCE_PINAI_multipok.       Block comment 'Interioon K002 from educt tank 8003' written.         PCS_SCE_PINAI_multipok.       Attributes for parameter'e_ ATT2M006 PV_Out' of type 'STRUCT' made, old interconnection 'AIT2H001/Out_AIT2H001/PV_Out' deleted.         PCS_SCE_PINAI_multipok.       Attributes for parameter'e_ ATT2H006 PV_Out' of type 'STRUCT'	PCS7_SCE_Prj\A1_multip o.k.	Block name 'FbkOpen_A1T2X006' written.		
PCS_SCE_PI(VAT_multipok.       Symbolic interconnection (V2.1) of type 'BOOL' made, old interconnection 'A1.12.A112X001'XVC' deleted.         PCS_SCE_PI(VAT_multipok.       Block comment 'Digital output driver' already exists.         PCST_SCE_PI(VAT_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAT_multipok.       Block name 'De_Art1XX005' written.         PCST_SCE_PI(VAT_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAT_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAT_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAT_multipok.       Block name 'Permet' already exists.         PCST_SCE_PI(VAT_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAT_multipok.       Block comment 'Valve inlet reactor R002 from educt tank B003' written.         PCST_SCE_PI(VAT_multipok.       Block comment 'Valve inlet reactor R002 from educt tank B003' written.         PCST_SCE_PI(VAT_multipok.       Hiterconnection 'A1122H006' VU.d' of type hegBOOL' written.         PCST_SCE_PI(VAT_multipok.       Hiterconnectorin A1122H006' VU.d' of type hegBOOL' written.         PCST_SCE_PI(VAT_multipok.       Hiterconnectorin A1122H006' VU.d' of type hegBOOL' written.         PCST_SCE_PI(VAT_multipok.       Hiterconnectorin A1122H006' VU.d' of type hegBOOL'	PCS7_SCE_Prj\A1_multip o.k.	Block comment 'Digital input driver' already exists.		
PCS7_SCE_PT(VA1_multipok.       Block name Vot_A112X006 wither.         PCS7_SCE_PT(VA1_multipok.       Block comment Tightal odupt driver' already exists.         PCS7_SCE_PT(VA1_multipok.       Block comment Tightal odupt driver' already exists.         PCS7_SCE_PT(VA1_multipok.       Block comment Tightal odupt driver' already exists.         PCS7_SCE_PT(VA1_multipok.       Block comment Tightal already exists.         PCS7_SCE_PT(VA1_multipok.       Block comment Tintefock with 2 inputs' already exists.         PCS7_SCE_PT(VA1_multipok.       Block comment Tintefock with 2 inputs' already exists.         PCS7_SCE_PT(VA1_multipok.       Block comment Tintefock with 2 inputs' already exists.         PCS7_SCE_PT(VA1_multipok.       Block comment Tintefock with 2 inputs' already exists.         PCS7_SCE_PT(VA1_multipok.       Block comment Tintefock with 2 inputs' already exists.         PCS7_SCE_PT(VA1_multipok.       Block comment Tintefock with 2 inputs' already exists.         PCS7_SCE_PT(VA1_multipok.       Block comment Tightal reactor R002 from educt tank B003' written.         PCS7_SCE_PT(VA1_multipok.       Block comment TightalPH(D06)Out_A112H006NUL_A112H006NUL_A112H001N	PCS7_SCE_Prj\A1_multip o.k.	Symbolic interconnection 'Q 2.1' of type 'BOOL' made, old interconnection 'A1.T2.A1T2X001.	XV.C' deleted.	
PCS_SCE_PINAI_multipok.       Block comment 'Ugial output driver' already exists.         PCS_SCE_PINAI_multipok.       Eduction Alt H001/NL1H001.PV_QUt' already exists.         PCST_SCE_PINAI_multipok.       Block name 'Pemit' already exists.         PCST_SCE_PINAI_multipok.       Block name 'Pemit' already exists.         PCST_SCE_PINAI_multipok.       Block name 'Pemit' already exists.         PCST_SCE_PINAI_multipok.       Block name 'Protect' already exists.         PCST_SCE_PINAI_multipok.       Block name 'Protect' already exists.         PCST_SCE_PINAI_multipok.       Block name 'Valve_AIT2X006' mutten.         PCST_SCE_PINAI_multipok.       Block comment 'Valve interconnection 'AIT2H005' writen.         PCST_SCE_PINAI_multipok.       Block comment 'Valve interconnection 'AIT2H006' VUL_AIT2H006' PV_Out' of type 'STRUCT' made. old interconnection 'AIT2H001'/VL_A	PCS7_SCE_Prj\A1_multip o.k.	Block name 'Out_A1T2X006' written.		
PCS_SCE_PI(VAI_multipok.       (lextual) interconnection X1H001/VA1H001PV_OUt already exists.         PCST_SCE_PI(VAI_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Interconnection 'AIT2H006/VULtif' of type interlock' with 2 inputs' already exists.         PCST_SCE_PI(VAI_multipok.       Interconnection 'AIT2H006/VULtif' of type interlock' of type in	PCS/_SCE_Prj\A1_multip o.k.	Block comment 'Digital output driver' already exists.		
PCS_SCE_PI(VAT_multip:ok.       Block name Predict Support already exists.         PCS_SCE_PI(VAT_multip:ok.       Block comment 'Interiodick with 2 inputs' already exists.         PCS_SCE_PI(VAT_multip:ok.       Block comment 'Interiodick with 2 inputs' already exists.         PCS_SCE_PI(VAT_multip:ok.       Block comment 'Interiodick with 2 inputs' already exists.         PCS_SCE_PI(VAT_multip:ok.       Block comment 'Interiodick with 2 inputs' already exists.         PCS_SCE_PI(VAT_multip:ok.       Block comment 'Interiodick with 2 inputs' already exists.         PCS_SCE_PI(VAT_multip:ok.       Block comment 'Valve inlet reactor R002 from educt tank B003' written.         PCS_SCE_PI(VAT_multip:ok.       Block comment 'Valve inlet reactor R002 from educt tank B003' written.         PCS_SCE_PI(VAT_multip:ok.       Hitcoronnection 'AIT2H006' VU_At' of type 'STRUCT' made, old interconnection 'AIT2H001' VU_At' deleted.         PCS_SCE_PI(VAT_multip:ok.       Interconnection 'AIT2H006' VU_At' of type 'hegBOOL' written.         PCS_SCE_PI(VAT_multip:ok.       Attributes for parameter'e_AIT2X001.GoseLocal' of type hegBOOL' written.         Time	PCS/_SCE_Prj\A1_multip o.k.	(Textual) interconnection 'A1H001\A1H001.PV_Out' already exists.		
PCS_SCE_PTyCAI_multipok.       Block comment Interlock with 2 inputs already exists.         PCS_SCE_PTyCAI_multipok.       Block name Protect already exists.         PCS_SCE_PTyCAI_multipok.       Block comment Interlock with 2 inputs already exists.         PCS_SCE_PTyCAI_multipok.       Block comment Interlock with 2 inputs already exists.         PCS_SCE_PTyCAI_multipok.       Block comment Interlock with 2 inputs already exists.         PCS_SCE_PTyCAI_multipok.       Block comment Value Protect R002 from educt tank B003' written.         PCS_SCE_PTyCAI_multipok.       Interconnection 'AIT2H006'Not_AIT2H006'PV_Out' of type PregBOOL' made, old interconnection 'AIT2H001'Not_AIT2H001'Not	PCS7_SCE_PrjVA1_multip o.k.	Block name 'Permit' already exists.		
PCS_SCE_Try VAT_multipok.       (1extual) interconnection A1H002V1H002/Py_Dut already exists.         PCST_SCE_PIVAT_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PIVAT_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PIVAT_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PIVAT_multipok.       Block comment 'Interlock with 2 inputs' already exists.         PCST_SCE_PIVAT_multipok.       Block comment 'Valve_A1T2X006' written.         PCST_SCE_PIVAT_multipok.       Block comment 'Valve_A1T2H006'NUL_A1T2H006'NUL_AT12H	PCS7_SCE_Pg\A1_multip o.k.	Block comment Interlock with 2 inputs' already exists.		
PCS7_SCE_PT(VAT_multipok.       Block name Protect aready exists.         PCS7_SCE_PT(VAT_multipok.       Cextual) interconnection XH12005 VU_Cut' already exists.         PCS7_SCE_PT(VAT_multipok.       Block comment Valve inder reactor R002 from educt tank B003 written.         PCS7_SCE_PT(VAT_multipok.       Block comment Valve inder reactor R002 from educt tank B003 written.         PCS7_SCE_PT(VAT_multipok.       Block comment Valve inder reactor R002 from educt tank B003 written.         PCS7_SCE_PT(VAT_multipok.       Interconnection X112H006/VU_A172H006/VU_A172H006/VU_A172H006/VU_A172H006/VU_A172H006/VU_A172H006/VU_A172H001/VU_A172H00	PCS7_SCE_PŋVA1_multip o.k.	(Textual) interconnection 'ATH002'ATH002.PV_Out' already exists.		
PCS7_SCE_PTyCAT_multipok.       biock comment Interlock win 2 Pputs aneady exists.         PCS7_SCE_PTyCAT_multipok.       biock comment Value A112030F written.         PCS7_SCE_PTyCAT_multipok.       Block name Value A1122006 witten.         PCS7_SCE_PTyCAT_multipok.       Block name Value A11221006 Vot A11214006 PV_Out of type STRUCT made. old interconnection 'A11214001.Vot_A11214001.PV_Out' deleted.         PCS7_SCE_PTyCAT_multipok.       Interconnection 'A11214006.Vot_A11214006.PV_Out' of type STRUCT' made. old interconnection 'A11214001.Vot_A11214001.PV_Out' deleted.         PCS7_SCE_PTyCAT_multipok.       Interconnection 'A11214006.Vot_A11214006.PV_Out' of type 'negBOOL' made. old interconnection 'A11214001.Vot_A11214001.PV_Out' deleted.         PCS7_SCE_PTyCAT_multipok.       Minterconnection 'A11214006.Vot_A11214006.PV_Out' of type 'negBOOL' made. old interconnection 'A11214001.Vot_A11214001.PV_Out' deleted.         PCS7_SCE_PTyCAT_multipok.       Minterconnection 'A11214006.PV_Out' of type 'negBOOL' witten.         Time       00.00.04       Interconnection 'A11214006.PV_Out' of type 'negBOOL' witten.         Time       0.       Minterconnection 'A11214001.PV_Out' deleted.         C:\Program Files\Stemens       End       Import completed successfully.         Imm       Imm       Imm       Imm         Imm       Imm       Imm         Imm       Imm       Imm         Imm       Imm       <	PCS7_SCE_PŋVA1_multip o.k.	Block name Protect already exists.		
PCS7_SCE_PI(VAT_multip       0.k.       (1extual) interconnection A11003V11P003Py_D0E aready exists.         PCS7_SCE_PI(VAT_multip       N.k.       Biock comment Valve inlet reactor R002 from educt tank 8003 written.         PCS7_SCE_PI(VAT_multip       N.k.       Biock comment Valve inlet reactor R002 from educt tank 8003 written.         PCS7_SCE_PI(VAT_multip       N.k.       Biock comment Valve inlet reactor R002 from educt tank 8003 written.         PCS7_SCE_PI(VAT_multip       N.k.       Interconnection /A112H006/V0_At of type STRUCT made, old interconnection /A112H001/V0_A114H0_A112H001/V0_A112H001/V0_A114H0_A112H001/V0_A112H001/V0_A112H001/V0_A112H001/V0_A112H001/V0_A112H001/V0_A112H001/V0_A112H001/V0_A112H001/V0_A112H001/V0_A112H001/V0_A112H001/V0_A112H001/V0_A114H0_A112H001/V0_A112H001/V0_A114H0_A112H001/V0_A114H0_A112H001/V0_A114H0_A112H001/V0_A114H0_A112H001/V0_A114H0_A112H001/V0_A114H0_A112H001/V0_A114H0_A112H001/V0_A114H0_A112H001/V0_A114H0_A112H001/V0_A1414H0_A114H0_A112H001/V0_A1144H0_A1144H0_A114H0_A114H0_A114H0_A114H0_A114H0_A1	PCS7_SCE_PrjVA1_multip o.k.	Block comment Interlock with 2 inputs already exists.		
PCS_2CE_PT_VAT_multip       ok.       block name Valve_A112AU06 witten.         PCS_2CE_PT_VAT_multip       ok.       block name Valve_inite reactor R002 from educt tank B003 written.         PCS_2CE_PT_VAT_multip       ok.       Interconnection 'A112H006\out_A1	PCS7_SCE_PrjVA1_multip o.k.	(Textual) Interconnection ATHUU3/ATHUU3.PV_Out already exists.		
PCS7_SCE_PIVAT_multipok.       biock comments Varie Interactor Nu02 from eouds tarks B000 within.         PCS7_SCE_PIVAT_multipok.       htterconnection 'A112H006'Nut_A112H006'Nut_A112H006'Nut_A112H006'Nut_A112H006'Nut_A112H006'Nut_A112H001'Nut_A112H00'Nut_A11	PCS7_SCE_PIJVA1_multip o.k.	Block name valve_ATTZXUU6 Written.		
PCS_SCE_PIVAT_Initipution.ok.       Interconnection ATT24005/Out_ATT24006_PV_Out of type hegBOOL* written.         PCS_SCE_PIVAT_initipution.ok.       Attributes for parameter 'e, ATT24005 Not_ATT24006 Not_ATT24006 Not_ATT24005 Not_ATT2400	PCS7_SCE_PrjVA1_multip o.k.	block comment valve inlet reactor RUU2 from educt tank BUU3 written.		
CS2_SCE_InVI_Indept.     ok.     Attributes for parameter "e_ATT2X001.CloseLocal" of type negboot. Indep, do theretownecton ector Att21001.ode_Att210	PCS7_SCE_PriVA1_multip 0.K.	Interconnection ATT2H006\Out_ATT2H006.FV_Out of type STRUCT made, old interconnection	ction ATT2H001\Out_ATT2H001.PV_Out_deleted.	
Co.J., DCL_1I, Windows of parameter     All backs of parameter     All backs of parameter     All backs of parameter     Import completed successfully.       C.N.Program Files/Siemens     End     Import completed successfully.     Import completed successfully.       V     Import completed successfully.     Import completed successfully.       Log file:     C:NProgram Files/Siemens/STEP7/S7Proj/PCS7_S_2/PCS7_Lib/Global/ReactorDeliveryValve00.LOG     Other File       Back     Ext     Open Object     Print	PCS7_SCE_PriVA1_multino.k	Attributes for parameter ' a A1T2Y001 Closed ocal' of type hegBOOL indue, ou interconne	cion Arrzhou Nou_Arrzhou II v_our deleteu.	
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31. The newly imported CFCs are now in the hierarchy level Reactor R001. In this manner, a large number of charts can be set up quickly and effectively. The interesting aspect of this method is that the changes in the charts are not performed individually but by means of the import file in table form. Nevertheless, each individual chart can be viewed with the CFC editor afterwards.



32. Now open the newly created CFCs and check the input signals, the output signals and the block names. Textual interconnections for CFCs that already exist should be closed.



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33. Another method for making changes in several charts that are already set up without opening them is the process object view.

 $(\rightarrow \text{View} \rightarrow \text{Process Object View})$ 

SIMATIC Manager - [PCS7_SCE_	MP (Plant View) C:\Program Files\Siemens\S	STEP7\S7Proj\PCS7_S_2\PCS7_MP]	
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PCS7_SCE_MP •	Plant View	A1T2×006	
PCS7_SCE_Pri	Process Object View		
⊡- @ A1_multipurpose_ ⊟- @ T1_educt_tar ⊕- @ educt_tar	Process Device Plant View Process Device Network View		
E B educt_tar E B educt_tar E B T2_reaction	<b>Offline</b> Online		
- fig reaction F - fig reaction F - fig T3_product_l €- fig product_t E- fig product_t	Large Icons Small Icons List Detaile		
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✓	Toolbar		
Changes to the Process Object	Status Bar		

34. By setting a filter for the I/O 'MonTiDynamic' in 'Parameter' tab, the value of a parameter can be changed for several CFCs, for example. Only the elements are always displayed that are located below the hierarchy level selected in the left side of the window and that correspond to the filter criteria. Here, change the value for all displayed I/Os to '10.0'. ( $\rightarrow$  A1\_multi\_purpose plant  $\rightarrow$  I/O name  $\rightarrow$  MonTiDynam  $\rightarrow$  Value  $\rightarrow$  10.0)

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4       A1_multipupose_plant       A172X001       Valve initer reactor R001 from educt tank B001       Valve_A172X001       V.       Mon TiDynamic       10.0         5       A1_multipupose_plant       A172X001       Valve initer reactor R001 from educt tank B001       Valve_A172X001       V.       Mon TiDynamic       10.0         6       G1       product_tanks       A1_multipupose_plant       A172X001       Valve initer reactor R001 from educt tank B001       Valve_A172X001       V.       Mon TiDynamic       10.0         6       A1_multipupose_plant       A172X001       Valve initer reactor R001 from educt tank B001       Valve_A172X001       V.       Mon TiDynamic       10.0         6       A1_multipupose_plant       A172X001       Valve initer reactor R002 from educt tank B002       Valve_A172X001       V.       Mon TiDynamic       10.0         7       A1_multipupose_plant       A172X001       Valve initer reactor R002 from educt tank B002       Valve_A172X001       V.       Mon TiDynamic       10.0         8       A1_multipupose_plant       A172X001       Valve initer reactor R002 from educt tank B002       Valve_A172X001       V.       Mon TiDynamic       10.0         9       A1_multipupose_plant       A172X001       Valve initer reactor R002 from educt tank B003       Valve_A172X001	Comparison of the second	General Velocks Filter by column: I/O name Hierarchy 1 A1_multipu 3 A1_multipu	Image: Sign: Display:           Image: Display:	Chart comment     Chart comment     Valve outlet educt tank B001     pump outlet reactor R001	Hierarchy folder   Equ eneral: Block Valve_A1T1X004 pump_A1T1S001 pump_A1T2S003	Upment properties S B., I/O name V., MonTiDynamic P., MonTiDynamic M., MonTiDynamic	Value         Image: Color of the colo
Image: Specific term     Image: Specific term       Image: Specific term     Image: Specific term       Image: Specific term     Image: Specific term	Bing reaction R001     Bing reaction R002     Bing reaction R002     Bing reaction R002     Bing product_tank R001     Bing product_tank R001     Bing insing_tank R001	4 A1_multipi     5 A1_multipi     5 A1_multipi     6 A1_multipi     7 A1_multipi     8 A1_multipi     9 A1_multipi     10 A1_multipi     11 A1_multipi	ppose_plart\ A1T2X00 ppose_plart\ A1T2X00 ppose_plart\ A1T2X00 ppose_plart\ A1T2X00 ppose_plart\ A1T2X00 ppose_plart\ A1T2X00 ppose_plart\ A1T2X00 ppose_plart\ A1T2X00	Valve inlet reactor R001 from educt tark 800           Valve inlet reactor R001 from educt tark 800           Valve inlet reactor R001 from educt tark 800           stimer reactor R001           Valve inlet reactor R002 from educt tark 800           Valve inlet reactor R002 from educt tark 800	11         Valve_A1T2X001           12         Valve_A1T2X002           13         Valve_A1T2X003           Motor_A1T2S001         Motor_A1T2S001           11         Valve_A1T2X004           12         Valve_A1T2X005           13         Valve_A1T2X006           14         Valve_A1T2X006	V MonTiDynamic     V MonTiDynamic     V MonTiDynamic     S MonTiDynamic     S MonTiDynamic     V MonTiDynamic     V MonTiDynamic     V MonTiDynamic     V. MonTiDynamic     V. MonTiDynamic	10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0
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35. By utilizing the 'Parameters' or 'Signals' tabs, extensive changes can be made quickly on the CFCs. In this example, however, everything is to remain unchanged, and we are returning to the plant view. ( $\rightarrow$  View  $\rightarrow$  Plant View).

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🗄 💼 reaction R002	5 A	.1_multipurpose_pl	A1T2X002	FbkOpen_A1T2X002	PV_In	FbkOpen_A1T2X001.PV_In		A1.T2.A1T2X002.GO+.O+	
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⊞ ⊡ in product_tank B001	7 A	.1_multipurpose_pl	A1T2X003	FbkClse_A1T2X003	PV_In	FbkClse_A1T2X001.PV_In		A1.T2.A1T2X003.GO+.O-	
	8 A	1_multipurpose_pl	A112X003	FbkOpen_A112X003	PV_In	FbkOpen_A112X001.PV_In		A1.12.A112X003.GO+O+	
E M T4_rinsing	9 A	1_multipurpose_pl	A1T2X003	Out_A1T2X003	PV_Out	Out_A1T2X001.PV_Out	0	A1.T2.A1T2X003.XV.C	
Imit Insing_tank BUU1	10 A	.1_multipurpose_pl	A1T2X004	FbkClse_A1T2X004	PV_In	FbkClse_A1T2X001.PV_In		A1.T2.A1T2X004.GO+.O-	
AIHUUI	11 A	.1_multipurpose_pl	A1T2X004	FbkOpen_A1T2X004	PV_In	FbkOpen_A1T2X001.PV_In		A1.T2.A1T2X004.GO+.O+	
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Airious	13 A	.1_multipurpose_pl	A1T2X005	FbkClse_A1T2X005	l PV_ln	FbkClse_A1T2X001.PV_In		A1.T2.A1T2X005.GO+O-	
Global Jabeling field	14 A	.1_multipurpose_pl	A1T2X005	FbkOpen_A1T2X005	l PV_ln	FbkOpen_A1T2X001.PV_In		A1.T2.A1T2X005.GO+O+	
	15 A	1_multipurpose_pl	A1T2X005	Out_A1T2X005	PV_Out	Out_A1T2X001.PV_Out	0	A1.T2.A1T2X005.XV.C	
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Process tag types	18 A	1_multipurpose_pl	A1T2X006	Out_A1T2X006	PV_Out	Out_A1T2X001.PV_Out	0	A1.T2.A1T2X006.XV.C	
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Press F1 to get Help.					PC internal (	local)			

36. Before you create a model for the educt tank, complete the interlocking of the pump A1T1S001 with the valve A1T2X004 created from the process tag type (if not already done) as shown below.



37. Educt Tank B001 with all its CFCs is used as model. First, delete figure(4) and then create a model. ( $\rightarrow$  Educt tank B001  $\rightarrow$  Models  $\rightarrow$  Create/Modify Model...)

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Starts the dialog for creating or mo	Object Properties A	Alt+Return			1.

38. Confirm the message that follows with "OK". ( $\rightarrow$  OK)



39. Confirm the introductory screen of the dialog assistant with "Next".  $(\rightarrow Next)$ 



40. In the next step, specify the parameters (blue) and the signals (green) that the import/export assistant displays. Select those shown in the picture below.

 $(\rightarrow$  IEA parameter  $\rightarrow$  IEA signal  $\rightarrow$  Next)

Impo	mport/Export Assistant: Create/Modify Model - PCST_SCE_Lib\Models\EductTankB00x\   Which I/Ds do you want to import as parameters or signals?  2(5)											
ì	which hos do you want to imp	on as parameters t	or algridia :						2 (3)			
	118	Charl	DII	DI			·					
<u> </u>	Hierarchy	Chart All 201	BIOCK	BIOCK COMMENT	170 name	1/U comment IE	A parameter	IEA V				
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2	Models\EductTankBUUx\	ATTILUUT	ATTILUUT_ESA-	Digital input	PV_In	Input value			-			
3	Models\EductTankBUUx\	A1115001	FbkHun_A111S001	Digital input	PV_In	Input value			_			
4	Models\EductTankBUUx\	A1115001	Uut_A1115001	Digital output	PV_Uut	Uutput value		<u> </u>	_			
5	Models\EductTankB00x\	A1T1X004	FbkClse_A1T1X004	Digital input	PV_In	Input value		<u> </u>				
6	Models\EductTankB00x\	A1T1X004	FbkOpen_A1T1X004	Digital input	PV_In	Input value		<ul> <li></li> </ul>				
7	Models\EductTankB00x\	A1T1X004	Out_A1T1X004	Digital output	PV_Out	Output value		<ul> <li></li> </ul>				
8	Models\EductTankB00x\	A1T1S001	OR_Interlock	Logical OR	In1	Input 1	✓					
9	Models\EductTankB00x\	A1T1S001	OR_Interlock	Logical OR	In2	Input 2	<ul> <li></li> </ul>					
10	Models\EductTankB00x\	A1T1S001	OR_Local	A1T1S001	In1	Input 1	<ul><li>✓</li></ul>					
11	Models\EductTankB00x\	A1T1S001	OR_Local	A1T1S001	In2	Input 2	✓					
12	Models\EductTankB00x\	A1T1S001	pump_A1T1S001	Pump outlet	LocalLi	1=Local M	<ul> <li>Image: A start of the start of</li></ul>					
13	Models\EductTankB00x\	A1T1X004	OR_Local	Logical OR	In1	Input 1	<ul> <li>Image: A start of the start of</li></ul>		1			
14	Models\EductTankB00x\	A1T1X004	OR_Local	Logical OR	In2	Input 2	<ul><li>✓</li></ul>					
15	Models\EductTankB00x\	A1T1X004	Valve_A1T1X004	Valve outlet	LocalLi	1=Local M	<b>v</b>		1			
16	Models\EductTankB00x\	A1T1L001	A1T1L001_LSA+	Digital input	Bad	1=Bad pro			1			
17	Models\EductTankB00x\	A1T1L001	A1T1L001 LSA+	Digital input	Bad.ST	Signal Sta			-			
18	Models\EductTankB00x\	A1T1L001	A1T1L001 LSA+	Digital input	Bad.Value	Value			-			
19	Models\EductTankB00x\	A1T1L001	A1T1L001 LSA+	Digital input	DataXchg	Data exch			-			
20	Models\EductTankB00x\	A1T1L001	A1T1L001_LSA+	Digital input	DataXchg1	Data exch			1			
24	U 11171 JT 10001	A 1 T 1 001	A171001 LCA	No. 1								
1.4												
B	ack Nevt	Onen Ch	art Print			C	ancel	Help				
		opencr					ancor	Help				

41. Next we specify the messages that are displayed in the import/export assistant.

 $(\rightarrow IEA \text{ message} \rightarrow Next)$ 

Ir	nport/Ex	oport Assistant: Create/Mod	dify Model -	PCS7_SCE_Lib\Mode	ls\educt_tank B001\					<b>X</b>
	* <b>~</b> v	Vhich blocks do you want to in	nport message	es for?						3 (4)
		Hierarchy	Chart	Block	Block comment	IEA message	Block type	Chart		
	1	Models\educt tank B001\	A1T1S001	pump A1T1S001	Pump outlet educt tank	<b>T</b>	MotL	CFC		
	2	Models\educt_tank B001\	A1T1X004	Valve_A1T1X004	Valve outlet educt tank	<b>~</b>	VIvL	CFC		
	Back	Next N	Ore	n Ocat   Bitt	1				Canad	Hab
L	Back	Next	Оре	n Chart Print					Cancel	Help

42. Now create the file template. ( $\rightarrow$  Create File Template...)

Import/Export Assistant: Create/Modify Which import data do you want to	/ Mod	iel - I	PCS7_:	SCE_Lib\Mode	ls\educt_tank B001\					× 4 (4)
Import file: <a>kno</a> import file assigned <a>href="mailto:mport file assigned"&gt;mport file assigned</a> <a>href="mailto:mport file assigned"&gt;mport file assigned</a> <a>href="mailto:mport file assigned"&gt;mport file assigned</a> <a>href="mailto:mport file"&gt;mailto:mport file assigned</a> <a>href="mailto:mport file"&gt;mailto:mport file assigned</a> <a>href="mailto:mport file"&gt;mailto:mport file assigned</a> <a>href="mailto:mport file"&gt;mport file assigned</a> <a>href="mailto:mport file"&gt;mailto:mport file assigned</a> <a>href="mailto:mport file"&gt;mailto:mport file assigned</a> <a>href="mailto:mport file"&gt;mailto:mport file assigned</a>	>						•	Create I	F <b>ile Template</b> Ipen File	
Import data:		Mode	el data:					Ot	ner File	
P Column title			Pa	Column title	Hierarchy	Chart	Block		1/O name	
			S	00101111100	Models/educt_tank_B001/	A1T1L001	A1T11 001 1	SA+	PV In	
		2	S		Models/educt_tank B001/	A1T1L001	A1T1L001 L	SA-	PV In	1
	>	3	S		Models/educt_tank B001/	A1T1S001	FbkBun A11	F1S001	PV In	1
		4	S		Models\educt tank B001\	A1T1S001	Out A1T1S0	01	PV Out	Ξ
	-	5	S		Models\educt tank B001\	A1T1X004	FbkClse A11	F1X004	PV In	1
	<	6	S		Models\educt tank B001\	A1T1X004	FbkOpen A1	T1X004	PV In	1
		7	S		Models\educt tank B001\	A1T1X004	Out A1T1X0	04	PV Out	†—
	<<	8	Ρ		Models\educt tank B001\	A1T1S001	OR Interlock	τ	In1	1
	_	9	Ρ		Models\educt_tank_B001\	A1T1S001	OR Interlock	τ	In2	1
		10	Ρ		Models\educt_tank B001\	A1T1S001	OR_Local		In1	1
		11	Ρ		Models\educt_tank B001\	A1T1S001	OR_Local		In2	1
		12	Ρ		Models\educt_tank B001\	A1T1X004	OR_Local		In1	1
		13	Ρ		Models\educt_tank B001\	A1T1X004	OR_Local		In2	I
		14	М		Models\educt_tank B001\	A1T1S001	pump_A1T1	5001	MsgEvId1	[ .
		1			III I I I I I I DODAS	A1T10001		2004	100 m 100	-
Back Finish		Oper	n Chart	Print			Ca	ancel	Help	

43. We are naming the file template "EductTank00.IEA". ( $\rightarrow$  OK)

Create File Template			×
Speichem 🚺 Global 💌	← 🗈 💣 📰 ▾		
Name	Änderungsdatum	Тур	Größe
🕌 s7prj 🐼 ReactorDeliveryValve00.IEA	01.10.2012 08:13 11.03.2015 09:49	Dateiordner S7jiea Document	6 KB
Dateiname: EductTank00.IEA			ОК
Dateityp: Import/export files (*.IEA)		•	Abbrechen

44. Next we select the columns that are displayed in general and those that are displayed for the parameters in the import file. (  $\rightarrow$  General  $\rightarrow$  PH comment  $\rightarrow$  Assigned CPU  $\rightarrow$ Chart name  $\rightarrow$  Chart comment  $\rightarrow$  Block name  $\rightarrow$  Block comment  $\rightarrow$  Parameters  $\rightarrow$  IO comment  $\rightarrow$  Textual interconnection)

Columns for the general and chart column group PH comment (PHComment) PH author (PHAuthor) Assigned CPU (CPU) Assigned OS (OS)	Columns for parameters colum Value Volue Voluc comment Volumination of the second	(Value) (ConComment)
PH comment         (PHComment)           PH author         (PHAuthor)           Assigned CPU         (CPU)           Assigned OS         (OS)	✓ Value ✓ I/O comment ✓ Textual interconnection	(Value) (ConComment)
PH author         (PHAuthor)           Assigned CPU         (CPU)           Assigned OS         (OS)	<ul><li>✓ I/O comment</li><li>✓ Textual interconnection</li></ul>	(ConComment)
Assigned CPU         (CPU)           Assigned OS         (OS)	Textual interconnection	<b>T</b> ( <b>D</b> 0
Assigned OS (OS)		(TextRef)
	☐ Identifier	(S7_shortcut)
Function identifier (FID)	🗖 Unit	(S7_unit)
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Chart name (ChName) Chart comment (ChComment) Chart author (ChAuthor) Sampling time (ChCycle) Block name (BlockName) Block comment (BlockComment) Block icon (BlockIcon) Block group (BlockGroup)	Text1  Frumeration  Invisible  MES relevant  Archiving  Chart I/O name	(S7_string_1) (S7_enum) (S7_visible) (S7_mes) (S7_archive) (RefName)

45. Here we select the columns that are displayed for the signals and the messages in the import file. ( $\rightarrow$  Signals  $\rightarrow$  IO comment  $\rightarrow$  Symbol name  $\rightarrow$  Messages  $\rightarrow$  Event  $\rightarrow$  OK)

> (Priority) (InfoText) (Origin) (OsArea) (Event) (BatchID) (OperatorInput)

(Free Text 1) (FreeText2) (Free Text 3) (Free Text 4) (FreeText5)

Cancel

Help

Columns for signal column group	s	Columns for message column groups	Columos for messar
<ul> <li>✓ Value</li> <li>✓ Value</li> <li>✓ I/O comment</li> <li>✓ Symbol name</li> <li>Symbol comment</li> <li>Absolute address</li> <li>Identifier</li> <li>Unit</li> <li>Text 0</li> <li>Text 1</li> <li>Enumeration</li> <li>Invisible</li> <li>MES relevant</li> </ul>	(Value) (ConComment) (SymbolComment) (AbsAddr) (S7_shortcut) (S7_string_0) (S7_string_1) (S7_enum) (S7_visible) (S7_mes)	Column s to including column gloops   Priority Info text Origin OS area  C Event Batch ID Operator input Free text 1 Free text 2 Free text 3 Free text 4 Free text 5	ent) me) nment) (0) (1) (1) (2) (3) (4) (5) (4) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7

In	nport/Export Assistant: Create/Modif	fy Moo	lel - I	PCS7_	SCE_Lib\Mode	ls\educt_tank B001\					×	
	Which import data do you want to assign to which model data ? 4(4)											
	Import file: C:\Program Files\Siemens\STEP7\S7Proj\PCS7_S_2\PCS7_Lib\Global\EductTank00.IEA Create File Template											
	Check replicas for changed IEA flags.											
	Import data:		Mode	el data:					Ot	ner File		
	Column title			Pa	Column title	Hierarchy	Chart	Block		I/O name		
			1	S	A1T1L001\	Models\educt tank B001\	A1T1L001	A1T1L001 L	SA+	PV In	t	
			2	S	A1T1L001\	Models\educt_tank B001\	A1T1L001	A1T1L001_L	SA-	PV_In	1	
		->	3	S	A1T1S001\	Models\educt_tank B001\	A1T1S001	FbkRun_A11	T1S001	PV_In	1	
			4	S	A1T1S001\	Models\educt_tank B001\	A1T1S001	Out_A1T1S0	01	PV_Out	TE	
			5	S	A1T1X004\	Models\educt_tank B001\	A1T1X004	FbkClse_A11	T1X004	PV_In	T	
		<	6	S	A1T1X004\	Models\educt_tank B001\	A1T1X004	FbkOpen_A1	T1X004	PV_In	Ι	
			7	S	A1T1X004\	Models\educt_tank B001\	A1T1X004	Out_A1T1X0	04	PV_Out	1	
		~~	8	P	A1T1S001\	Models\educt_tank B001\	A1T1S001	OR_Interlock		In1	4	
			9	P	A1T1S001\	Models\educt_tank B001\	A1T1S001	OR_Interlock		In2	4	
			10	P	A1T1S001\	Models\educt_tank B001\	A1T1S001	OR_Local		In1	4	
			11	P	A1T1S001\	Models\educt_tank B001\	A1T1S001	OR_Local		In2	4	
			12	P	A111X004\	Models\educt_tank B001\	A111X004	OR_Local		In1	4	
			13	P	ATT1X004\	Models\educt_tank B001\	ATTIX004	OR_Local	2001	In2	4	
			14	M	ATTIS001\	Models \educt_tank BUUT	ATTISUUT	pump_ATTIS	2001	MISGEVICI		
	4 III +		•			III				+		
					1	-1			1			
	Back Finish		Oper	n Chart	Print			Ca	incel	Help		

46. Now open the created file. ( $\rightarrow$  Open file)



**Note:** As an alternative, the included import file can be utilized. Instead of Open File, select the button 'Other file' and select the file that is included. With that file, the steps below can be skipped. Next step: 51.

47. The first row is again duplicated as often as models are needed. ( $\rightarrow$  Duplicate Row)

🐉 IEA Fil	IEA File Edition: Editing IEA Files - [C\Program Files\Siemens\STEP7\S7Proj\PCS7_S_2\PCS7_Lib\Globa\EductTank00.IEA]												
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3	Prj		H/	TC	AS		C						
4	PCS7 SCF Pri	A1 multinurnose pla	nt\T1_educt_tanks\educt_tank B001\	educt tank B001	S7 Program(1)	A1T1L001	level monitoring educt tank B001						
	Undo	Ctrl+Z		•	•		· · · · · · · · · · · · · · · · · · ·						
	Redo	Ctrl+R											
	Cut	Ctrl+X											
	Сору	Ctrl+C											
	Insert	Ctrl+V											
	Insert Rows												
	Duplicate Row	N											
<	Find/Replace	لم Ctrl+F3					F.						
Press F	Optimum Column	Width					NUM //						

48. For Number of duplicated rows we set 2 and confirm with "OK". ( $\rightarrow$  2  $\rightarrow$  OK)

Duplicate Rows
Number of duplicated rows
2
OK Cancel Help

🕼 IEA File Editor: Editing IEA Files - [D:\PCS7\SCE\P01-07\S4S en\PCS7_SCE\PCS7_Lib\Global\EductTank00.IEA]									
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4	PCS7_SCE_Prj	A1_multipurpose_plant\T1_educt_tanks\educt_tank B001\	educt tank B001	S7 Program(1)	A1T1L001	level monitoring educt tank B001			
5	PCS7 SCE Pri	A1_multipurpose_plant\T1_educt_tanks\educt_tank B001\	educt tank B001	S7 Program(1)	A1T1L001	level monitoring educt tank B001			
6	PCS7 SCE Pri	A1 multipurpose plant\T1 educt tanks\educt tank B001\	educt tank B001	S7 Program(1)	A1T1L001	level monitoring educt tank B001			
4									
						4			
Press F1	for help					1.			

49. First, change the general information in the columns Hierarchy and PHComment. Then change the ChName and the ChComment of the CFCs. For the signals and parameters you have to adapt the SymbolName (in inverted commas for input signals and as absolute address for output signals), the BlockName/BlockComment and TextRef.

🛟 IEA	😢 IEA File Editor: Editing IEA Files - [D:\PCS7\SCE\P01-07\S4S en\PCS7_SCE\PCS7_Lib\Global\EductTank00.IEA]								
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3	Prj		PI						
4	PCS7_SCE_Prj	A1H003\A1H003.PV_Out	1=Local Mode: Local operation by field signal	Valve_A1T1X004	Valve outlet educt tank B001				
5	PCS7_SCE_Prj	A1H003\A1H003.PV_Out	1=Local Mode: Local operation by field signal	Valve_A1T1X005	Valve outlet educt tank B002				
6	PCS7_SCE_Prj	A1H003\A1H003.PV_Out	1=Local Mode: Local operation by field signal	Valve_A1T1X006	Valve outlet educt tank B003				
•					۴.				
Press F1	. for help				<i>li</i> .				

50. The messages come at the end; leave them unchanged, however. Save the file and close the editing. ( $\rightarrow$  Save  $\rightarrow$   $\boxed{\boxtimes}$ )

🖉 IEA File Editor: Editing IEA Files - [C:\Program Files\SIEMENS\STEP7\S7Proj\PCS7_S_2\PCS7_Lib\Global\EductTank00.IEA]								
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5 PCS7_SCE_Prj A1_multipurpose_plant\T1_educt_tanks\e	duct_tank B002\	educt tank	B002 S	7 Program(1)	A1T1L002	level monitoring e	duct tank E	3002
6 PCS7_SCE_Prj A1_multipurpose_plant\T1_educt_tanks\e	duct_tank B003\	educt tank	: B003 S	7 Program(1)	A1T1L003	level monitoring e	duct tank B	3003
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2 A1T1S001	A1T1X004			A1	T1L001\A1T1L	001_LSA+.PV_In	_SA+.PV_In	
3 Pri     C     C     PCS7_SCE_Pri     A1T1S001     pump outlet educt tank 8001     A1T1X00	C  4 Valve outlet educt	tank B001	A1 T1 A1T1	11 001 I SA+ SA+	S Input value	A1T1L001_LSA+	Digital inpu	t driver
5 PCS7_SCE_Prj ATT1S002 pump outlet educt tank B002 ATT1X00	5 Valve outlet educt	t tank B002	A1.T1.A1T1	1L002.LSA+.SA+	Input value	A1T1L002_LSA+	Digital inpu	t driver
6 PCS7_SCE_Prj A1T1S003 pump outlet educt tank B003 A1T1X00	6 Valve outlet educt	tank B003	A1.T1.A1T1	1L003.LSA+.SA+	Input value	A1T1L003_LSA+	Digital inpu	t driver
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4 PC57_SCE_Pri A1.11.A111L001.LSA-SA Input value A1T1L0	JUI_LSA-   Digital inp D02_LSA-   Digital inp	out driver A	1.11.A111X	005 GO+-O- Ir	nput value	-bkUse_A111X004	Digital input	driver
6 PCS7_SCE_Prj A1.T1.A1T1L003.LSASA- Input value A1T1L	003_LSA- Digital inp	out driver A	1.T1.A1T1X	006.GO+.O- Ir	put value	FbkClse_A1T1X006	Digital input	driver
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Press F1 for help							NUM	-
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#### SCE Training Curriculum | PA Modul P01-07, Edition 09/2015 | Digital Factory, DF FA

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5	PCS7_SCE_Prj	Q 3.1 Output	value Ou	ut_A1T1S002 I	Digital output driv	er Q.0.4	Output value Out_A1T1X005	Digital output driver
6	PCS7_SCE_Prj	Q 3.2 Output	value Ou	ut_A1T1S003   I	Digital output driv	er Q.0.5	Output value Out_A1T1X006	Digital output driver
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5	PCS7_SCE_Prj	A1T2X002\FbkOpen_A1T2X00	2.PV_Out	Input 1	OR_Interloc	k Logical OR	A1T2X005\FbkOpen_A1T2X005.PV_O	lut Input 2
6	PCS7_SCE_Prj	A1T2X003\FbkOpen_A1T2X00	3.PV_Out	Input 1	OR_Interloc	k Logical OR	A1T2X006\FbkOpen_A1T2X006.PV_0	lut Input 2
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2	Project		A1T1	S001\OR Loca	al.ln1		A1T1S001\OR Log	al.ln2
3	Prj			P			P	
4	PCS7_SCE_Prj	A1T2H001\Out_A1T2H001.	PV_Out	Input 1	OR_Local	A1T1S001	A1T2H004\Out_A1T2H004.PV_Out	t Input 2
5	PCS7_SCE_Prj	A1T2H002\Out_A1T2H002.	PV_Out	Input 1	OR_Local	A1T1S002	A1T2H005\Out_A1T2H005.PV_Out	t Input 2
6	PCS7_SCE_Prj	A1T2H003\Out_A1T2H003.	PV_Out	Input 1	OR_Local	A1T1S003	A1T2H006\Out_A1T2H006.PV_Out	t Input 2
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Press F1	for help							NUM //
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5	PCS7_SCE_Prj	A1T2H002\Out_A1T2H002.PV	Out I	Input 1	OR_Local L	ogical OR with 4 input	s A1T2H005\Out_A1T2H005.PV_O	ut Input2
6	PCS7_SCE_Prj	A1T2H003\Out_A1T2H003.PV	_Out I	Input 1	OR_Local L	ogical OR with 4 input	s A1T2H006\Out_A1T2H006.PV_O	ut Input 2
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-								

51. The Assistant is exited with "Finish". ( $\rightarrow$  Finish)



52. The newly created model is located in the project library in the folder Models. Here, the model that was created is renamed to "EductTankB00x".



53. Before starting the import, the hierarchy folders B001 to B003 including the CFCs they contain have to be deleted. ( $\rightarrow$  educt\_tank B00x  $\rightarrow$  Delete)

SIMATIC Manager - [PCS7_SCE_MP (F	Plant View) C:\Program Fi	les\Siemens\STEP7\S	7Proj\PCS7_S_2\PCS7_I	MP]
弦 File Edit Insert PLC View C	ptions Window Help			_ 8 ×
D 🛩   🔐 🛲   X 🖻 🛍   🌰		📘 🔤 🛛 Ko Filter >	• 7	1 號 🎯   🖷 🗖 🔟   📢
CST_SCE_MP  CST_SCE_Pri  CST_SCE_Pri CST_SC	[æ]A1T1L001	A1T1S001	▲1T1×004	
educt tank 800	Cut	Ctrl+X		
⊞ _ 🙆 educt_tank B00	Сору	Ctrl+C		
i⊟í⊡ T2_reaction ⊡í⊡ reaction R001	Paste	Ctrl+V		
E- @ reaction R002	Delete	Del		
	Insert New Object	•		
⊡	Access Protection	+		
PCS7_SCE_Lib	Print	+		
	Plant Hierarchy	•		
🗄 🏀 EductTankB00x	Process Tags	•		
Frocess (ag types	Models	+		
Deletes the selected objects.	SIMATIC BATCH	· · L		li.

54. Confirm the warning with "Yes". ( $\rightarrow$  Yes)

Delete (25	56:128)
<u> </u>	This procedure cannot be undone! Do you really want to delete the selected objects 'educt_tank B001' ?
Ye	No

55. After the deletion, the plant hierarchy looks like this.



- 🛃 SIMATIC Manager [PCS7\_SCE\_MP (Plant View) -- C:\Program Files\Siemens\STEP7\S7Proj\PCS7\_S\_2\PCS7\_MP] - - -🔂 File Edit Insert PLC View Options Window Help - 8 × 🗋 🧀 🚼 🛲 👗 🛍 💼 📩 🔍 🗣 🎭 🧏 🛗 🎆 💼 🔍 < No Filter > 💽 🎶 👯 🎯 📑 🚍 🛄 📢 ⊡- 🔂 PCS7\_SCE\_MP Cut Ctrl+X 🖶 🎒 PCS7\_SCE\_Prj 🗄 📄 Shared Declarations Ctrl+C Сору 🖻 🛅 A1\_multipurpose\_plant Ctrl+V Paste E T1\_educt\_tanks E I1\_educt\_tanks E III T2\_reaction Delete Del Insert New Object 🗄 🛅 product\_tank B001 Access Protection ۲ 🗄 🛅 product\_tank B002 🗄 🛅 T4\_rinsing Print ۲ initiante Boolie Englished Boolie Engli Plant Hierarchy Þ 🗄 📄 Shared Declarations Process Tags Þ 🖻 🖀 Models Models Create/Modify Model... Þ 🙆 EductTankB00x Process tag types Control modules Þ Import... 22 Export... SIMATIC BATCH b Rename F2 Creates replicas of the model and assigns parameters to the copies Object Properties... Alt+Return
- 56. Now we can start importing the model. ( $\rightarrow$  EductTankB00x  $\rightarrow$  Models  $\rightarrow$  Import...)

57. Confirm the start screen of the import/export assistant with "Next". ( $\rightarrow$  Next)

Import/Export Assistant Models: Impo	rt - PCS7_SCE_Lib\Models\EductTankB00x\	x
K Introduction		1 (3)
	Assistant: Import Models With the assistant, you can create replicas of models and import the data from the import files to the replicas. In a multiproject, the model is copied from the master data library to the specified target projects as a replica and the data is imported subsequently. Afterwards, you have a replica for each line of an import file. The data of the import files are written to the relevant I/Os or blocks of the replicas.	
	The hierarchy folder of the replica is displayed in the SIMATIC Manager with this icon.	
Back Next	Cancel Help	,

58. Check "Make textual interconnections" and click on "Next". ( $\rightarrow$  Make textual interconnections  $\rightarrow$  Next)

Import/Export Assistant Models: Import - PCS7_SCE_Lib\Models\EductTankB00x\		×
Which settings do you want to use for import ?		2 (3)
Include signal in the symbol table     Include signal in the symbol table     Include signal in the symbol table		
Import file <-> Model		
Import Model	00.0	Open File
COProgram Hier Stemens (STEP7/S7ProjPCS7_S_2/PCS7_Lib Volobal Veduct Tanktuutex Models Veduct Tankt	C	ther File
< III	- F	
Back Next	Cancel	Help

59. The assistant is now finished and the import is started. ( $\rightarrow$  Finish)

Import/Export Assistant Models: Import	t - PCS7	_SCE_Lib\Models\Educt	TankB00x\			×
Do you want to finish the import ?						3 (3)
Only show errors and warnings in log						
Import log:						
Object	Action	Log text				
I €						· ·
	mono\ C7	ED7\ C7Dmi\ DCC7_C_2\ C		ductTack001	06	Nhao Dia
Log file: C. (Program Piles (Sier	mens \31	Er/\3/riuj\FC3/_3_2\F		JUCLI ANKOUL		Juner File
Back Finish	Op	en Object Print			Cancel	Help

60. The import process is logged and the result is displayed. ( $\rightarrow$  Exit)



61. The imported models are now present in the plant hierarchy.



62. Check to see if the textual interconnections with the existing CFCs are closed.

Input:	Textual interconnection:	Inverted
MotL.Pumpe_A1T1S001 .LocalLi	A1H003\A1H003.PV_Out	No
Intlk02.Permit.In01	A1H001\A1H001.PV_Out	No
Intlk02.Protect.In01	A1H002\A1H002.PV_Out	No
Or04.Or_Interlock.In1	A1T2X001\FbkOpen_A1T2X001.PV_Out	No
Or04.Or_Interlock.In2	A1T2X004\FbkOpen_A1T2X004.PV_Out	No
Or04.Or_Local.In1	A1T2H001\Out_A1T2H001.PV_Out	No

Table 1: Textual interconnections in chart 'A1T1S001'

Table 2: Textual interconnections in chart 'A1T1X004'

Input:	Textual interconnections:	Inverted
VlvL.Pumpe_A1T1X004. LocalLi	A1H003\A1H003.PV_Out	No
Intlk02.Permit.In01	A1H001\A1H001.PV_Out	No
Intlk02.Protect.In01	A1H002\A1H002.PV_Out	No
Or04.Or_Local.In1	A1T2H001\Out_A1T2H001.PV_Out	No

Table 3: Textual interconnections in chart 'A1T2H001'

Input:	Textual interconnection:	Inverted
Or08.Or_A1T2H001.In7	A1T1L001\A1T1L001_LSAPV_Out	Yes

#### **E**XERCISES

In the exercises we apply what we learned in the Theory section and in the Step by Step Instructions. The existing multi-project from the step by step instructions (PCS7\_SCE\_0107\_R1505\_en.zip) will be utilized and expanded.

The tasks in this exercise supplement the plant with all objects not implemented so far. It is up to you where you want to utilize the tools for importing plant design data. Effective utilization of importing plant design data does not only depend on the plant structure, but also on the mapping of this structure in the plant hierarchy. With some practice, you will improve your knowledge regarding meaningful plant designations and the structure of the plant hierarchy.

#### **TASKS**

- 1. Complete the following CFCs in Reactor R001:
  - A1T2H002 and A1T2H003
  - A1T2H013 and A1T2H015
  - A1T2X007.
- 2. Check open textual interconnections between the manual controls in the reactor and other CFCs in Reactor R001. To this end, you can also utilize the function 'Close textual interconnections' under Options in the CFC Editor. In the result, the interconnections that could not yet be closed are displayed. With a double click or by pressing the button "Go to", select an interconnection that is still open and correct it manually.



**Note:** Not all open textual interconnections can be closed here. Most important are the connections within Reactor R001.

- Now, create a model of Reactor R001. Delete the folder Reactor R002 and import the model. Reactor R001 is omitted automatically because the folder already exists. Should you delete it, it will also be generated from the model.
- 4. Next, create a model of Product Tank B001. Delete at least the folder Product Tank B002 and import the model.
- 5. Now set up the missing CFCs for the rinse tank:
  - A1T4L001
  - A1T4S001
  - A1T4X001, A1T4X002, A1T4X003 and A1T4X004.
  - 6. Interconnect the manual control Rinse in a way that the rinsing water flows from the rinse tank into the reactor and right away back into the rinse tank.
  - 7. Check whether textual interconnections are still open.
  - 8. Finally, check all CFCs for correct designations and correct connections. For the first task, it is best to utilize the process object view. Always select one CFC in the left window while checking the name of the blocks in the 'Blocks' tab in the right window. To look for errors, however, you should use the simulation.